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"AGRICULTURE, AT ONCE THE CAUSE AND EVIDENCE OF CIVILIZATION."

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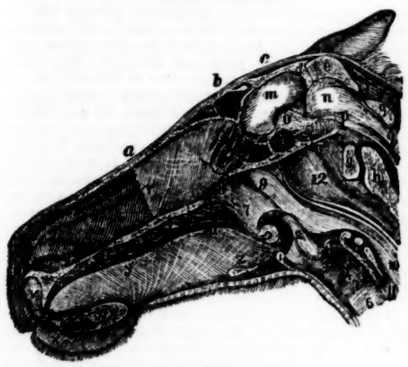
THE CULTIVATOR.

WILLIS GAYLORD & LUTHER TUCKER, EDITORS.

THE HORSE.



Section of the Head.—[Fig. 55.]

a The nasal bone, or bone of the nose.
b The frontal bone The cavities or cells beneath are called the frontal sinuses.
c The crest or ridge of the parietal bones.
d The tentorium, or bony separation between the cerebrum and cerebellum.
e The occipital bone.
f The ligament of the neck, or *pack-wax*, by which the head is chiefly supported.
g The atlas, *sustaining* or *carrying*, or first bone of the neck.
h The dentata, *tooth-like* or second bone of the neck.
i The cuneiform, or *wedge-shaped* process, or base of the occipital bone. Between it and the other portion of the occipital bone *e*, lies the great foramen or aperture through which the prolongation of the brain,—the spinal marrow,—issues from the skull.
The sphenoid, *wedge-like*, bone, with its cavities.
The ethmoid, *sieve-like* bone, with its cells.
m The cerebrum, or brain, with the appearance of its cortical and medullary substance.
n The cerebellum, or little brain, with its beautiful aborescent appearance.
o A portion of the central medullary, *marrow-like*, substance of the brain, and the prolongation of it under the name of the crus cerebri, *leg of the brain*, and from which many of the nerves take their origin.
p The medulla oblongata, —the prolongation of the brain after the medullary substance of the cerebrum and cerebellum have united, and forming the commencement of the spinal marrow. The columnar appearance of this portion of the brain is represented, and the origins of the respiratory nerves.
q The spinal marrow extending through a canal in the centre of the bones of the neck, back and loins, to the extremities of the tail, and from which the nerves of feeling and of motion, that supply every part of the frame, except the head, arise.
r The septum narium, or cartilaginous division between the nostrils.
s The same cut off at the lower part. to show the spongy turbinated, *turban-shaped*, bones filling the cavity of the nostril.
t The palate.
u The molar teeth. or grinders.
v The inferior maxillary bone, containing the incisor teeth, or nippers. The canine tooth, or tush, is concealed by the tongue.
w The posterior maxillary, or lower jaw with its incisors.
x The lips.
y The tongue.
z A portion of the os hyoides, or bone of the tongue, *like a Greek u, v.*
1 The thyroid, *helmet-shaped* cartilage, enclosing and shielding the neighboring parts.
2 The epiglottis, or *covering of the glottis*, or aperture of the wind-pipe.
3 The arytenoid, *funnel-shaped*, cartilages, having between them the aperture leading into the trachea or wind-pipe.
4 One of the chordæ vocales, *cords* or ligaments concerned in the formation *of the voice.*
5 The sacculus laryngis, sac or *rentricle* of the larynx, *throat*, to modulate the voice.
6 The trachea or wind-pipe, with its different rings.
7 The soft palate at the back of the mouth, so constructed as almost to prevent the possibility of vomiting.
8 The opening from the back part of the mouth into the nostril.
9 The cartilage covering the entrance into the eustachian tube, or communication between the mouth and internal part of the ear.
10 The œsophagus, or gullet.
11 The cricoid, *ring-like* cartilage, below and behind the thyroid.
12 Muscle of the neck, covered by the membrane of the back part of the mouth.—*Farmers' Series.*

The horse is one of the most noble, useful and beautiful of animals; and since he has been subjected to the dominion of man has occupied a prominent place in every department of agricultural economy. But he is at the same time, an animal more susceptible of disease or injury than any other of the domesticated ones. Less hardy than the ox, if injured or treated as that patient animal is, he becomes worthless; hence the necessity of greater care in guarding against disease, or the infliction of injuries. The horse, too, is subject to some diseases, to which none of the other animals of the farm are; some of them of a very serious character; and it is for the purpose of illustrating the nature of two of these, as well as for giving a more correct opinion of the anatomy of the horse's head than is generally prevalent, that we have prepared the engraving that accompanies this article. We may hereafter give other sectional drawings to illustrate particular parts or diseases; as, although the horse is one of the most common of animals, the structure of some of the most important parts appears to be little understood.

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The Glanders.

The two diseases to which we have alluded are the *glanders* and the *poll evil*. The first of these was described nearly two thousand years since, and was then, as now, a dangerous, not to say incurable, disease. Glanders may be an original disease, or it may be the result of contagion; indeed its contagiousness is one of its most formidable features If a horse in which the disease is well developed, is allowed to lie in the pasture with other horses, or if a sound horse is put in a stable with a glandered horse, or where one has been fed, they are very liable to become infected. Notwithstanding these facts are well known, many men will use a glandered horse as long as the poor creature can stagger, thus subjecting not only their own horses, but all those with which they come in contact, to the danger of this incurable complaint. In consequence of the increase of veterinary knowledge, another alarming fact has been disclosed with regard to this disease, and that is, that men who are exposed in stables with glandered horses, are liable to the disease in its most fatal form. Several well attested cases of this nature, have, within a few years, come before the Veterinary College of London, clearly traceable to contact with infected animals.

In its first appearance, glanders may be confounded with a catarrh or cold, but a little attention will show the distinction. Colds are attended with fever and cough; while the glanders rarely produce either. The matter discharged from the nose is also different, being lighter and clearer in its color than the mucus in catarrh, more glutinous or sticky, and flowing steadily, and not irregularly, as in cold. It is the application of this discharge to some abraded surface, or to the nostrils of a sound animal, that produces the disease. One of the most certain tests of this disease is to inoculate some worthless beast with this purulent matter, when, if it is the glanders, it will show itself as surely as the small pox after inoculation.

When glanders are bred in horses, it may always be traced to improper stable management. Closely confined, hot and ill ventilated stables, so vitiate the air as to render it unfit for respiration, and by its continual passage over the delicate membranes that line the nostrils, at last produces irritation, inflammation and disease. It is a singular fact, however, that when one nostril alone is attacked, it is almost always the near one. M. Dupuy, of the Veterinary School at Toulouse, states, that of eight hundred cases that had come under his notice, only one was affected in the off nostril. As the disease progresses it affects not only the nostrils, but proceeds to the frontal sinuses, as shown in the engraving; the glands of the jaws and neck are affected, the bones become carcous and rotten, and emaciation and death ensue. In the country, where horses lie in the pasture during summer, and in stables during the winter, that are usually far from presenting any serious obstacle to the circulation of the air, glanders are much less common, than in the crowded and confined stables of cities, where this disease at times commits fearful ravages.

In spite of the dangerous consequences known to result from this disease, there are individuals who will not only use glandered horses themselves, but resort to the most infamous deception in order to put such horses off upon the ignorant or the unsuspecting. Some of these tricks, according to Mr. Youatt, are as follows:—"Having given the horse a brushing gallop, that he may thoroughly clear his nose, some of them blow powdered alum or white vitriol up the nostrils a little while before he is shown, and though the horse may be sadly tortured, the discharge is for some hours stayed. Others roll up a pledget of tow, and introduce it into the nostril sufficiently high to escape common observation."

In cases of the glanders, where the horse has been turned from the stable to the pasture, or the freest ventilation given, the disease has disappeared; but it is apt to return with the causes that first produced it—warm stabling and improper ventilation. In Arabia and in South America, where stables are not known, the glanders never appear; but wherever the European mode of keeping horses is pursued, the disease follows as a matter of course, and infection continues the evil that injudicious management created. But though nature sometimes effects a seeming cure, medicines appear to be wholly inoperative, or nearly so, in combatting this disease. We are aware that there are a thousand cures for glanders as well as other diseases, but it well sustains the character of incurable so long ago given it, and the man whose horse has this disease fixed upon him can not perform a more laudable act, both as concerns the community and the poor animal itself, than to knock it on the head at once, and thus put an end at once to suffering and the danger of contagion. Iodine has, indeed, lately been announced as a cure for this formidable complaint, but its use is too recent to justify a full decision on its merits, although experiments would seem to be much in its favor. In the present state of our knowledge of the disease, a return as nearly as possible to a state of nature, in the condition of the animal, while in the incipient stages of the disease, appears to be the most likely to arrest its progress.

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The Poll Evil.

The Poll Evil is another disease, the seat of which will be shown in the engraving, better than by any mere description. The bone of the neck nearest the head, and marked *g*, in the cut, is termed the *atlas*, because in the human being, that bone supports the head and it is at or near the junction of this bone with the head, that this troublesome and disagreeable disease is seated.

The poll evil arises from various causes, all inflicting more or less injury on the parts where the disease appears. Hanging back in the stable, or when hitched on the halter or bridle—rubbing or striking the back of the head against the manger—unnatural stretching and painful tension of the ligament of the neck by unnecessary tight reining—and not unfrequently an accidental or a designed blow on the poll will originate this disease; inflammation comes on, and a swelling appears, hot, tender and painful. As the ligament *f* passes over the atlas *g*, and the seat of the inflammation is between the ligament and the bone beneath, it is always serious in its nature and difficult of treatment. Mr. Youatt, one of the first veterinary surgeons of the age, thus describes the course to be pursued, when a horse is threatened with poll-evil:

"The first thing to be attempted is to abate the inflammation by bleeding, physic, and the application of cold lotions to the part. By these means, the tumor will sometimes be dispersed. This system, how ver, must not be pursued too far. If the swelling increases, and the heat and tenderness likewise increase, matter will form in the tumor; and then our object will be to hasten its formation by warm fomentations, poultices, or stimulating embrocations. As soon as any matter is formed, which may be known by the softness of the tumor, and before it has time to spread around and eat into the neighboring parts, it should be evacuated; and now comes the whole art of treating poll-evil: *the opening into the tumor must be so made that all the matter shall run out*, and continue afterwards to run out as fast as it is formed, and not collect at the bottom of the ulcer to irritate and corrode. This can be effected by a seton alone. The needle should enter at the top of the tumor, penetrate through its bottom, and be brought out through the side of the neck, a little below the abscess. Without any thing more than this, and frequent applications of warm water to keep the parts clean and obviate inflammation, poll-evil in its early stage may usually be cured. If the ulcer has been allowed to deepen and spread, and threatens to eat into the ligaments of the joints of the neck, it may be necessary to stimulate its surface, and perhaps painfully so, in order to bring it to a healthy state and dispose it to fill up. This however, will be ineffectual except the pus is enabled by the use of setons, perfectly to run out of the wound, and the application of these setons may require the skill and anatomical knowledge of the veterinary surgeon. In very desperate cases it may be necessary, in order that the ulcer in its whole extent may be acted upon by caustics, to divide the ligament of the neck, by which we have described the head as almost entirely supported. This may be done with perfect safety, as the head

will be supported although the ligament should be divided between the second bone and the head. The divided ligament will soon unite again, and its former usefulness will be restored when the wound so made is healed."

In cattle or horses there is an opening between the first and second bones of the neck, in which the spinal marrow is only coverd with a ligament, and it is at this point that the butchers of Lisbon and Madrid, with a short but keen bladed knife, deal the fatal blow. This operation is called *pithing*, and where understood, is much preferable to the common mode of knocking down, practiced in England and this country.

Action of Manures.

Of the importance of manures to the cultivator of the soil, there seems to be but one opinion. The practical man and the theorist both are compelled to admit, that a plentiful supply of manure is essential to success in farming; and experience proves that few things are more true than the Flemish maxim, "without clover no cattle, without cattle no manure, without manure no grain crop." The nature of the action of manures, or the manner in which they produce their good effects, does not, however, seem to be equally clear with the points before mentioned; at least, there seems to be a greater diversity of opinion on this topic, a thing perhaps allowable when it is considered that it is less a matter of direct observation than the others, and that even men of science do not appear to be perfectly agreed in all their conclusions respecting the laws of vegetable nutrition.

To produce vegetation, three things seem to be indispensable; moisture, warmth, and a communication with the earths. Deprivation of the two first is certainly fatal to plants, and though where the two first are present and the last absent, yet the perfection of such plants is never complete, and fruits are never formed. Thus an acorn, suspended by a string over a glass of water at a proper temperature, will vegetate, and while the roots seek the water the young plant will extend upwards, yet the growth will continue no longer than the substance of the acorn affords nourishment to the young shoot. Fill the glass with earth, and if watered, the growth will continue so long as nourishment and space are afforded. It would appear then to be clear that the union of these three things are necessary to the growth and perfection of plants.

There was a time when it was believed that plants derived their support entirely from water, and that if a suitable supply of this was provided, it was all that was required, and that the use of the earths was only to serve as a reservoir or repository of this fluid for the use of the plant. This, idea of water being the sole nourisher of plants, may be traced through Greece to Egypt, an origin, or opinion, not surprising among a people who yearly witnessed the fertilizing effects of the waters of the Nile, on the apparently barren sands of that country. The large quantity of sediment brought down by the river, appears to have been overlooked in their estimate of fertilizing causes, though it is now well understood that of all substances such deposites are the most valuable. This opinion was revived and apparently confirmed in the 17th century, by the experiments of Boyle and Van Helmont. The willow tree of the latter, planted in a tight box, lined with lead, the earth and tree carefully weighed at planting, watered with rain water only, and after a few years growth, both the earth and tree again weighed gave a gain, which, when it was ascertained that the earth had diminished only a few ounces, was deemed conclusive as to the nutritive power of water. It remained for later philosophers, by the analysis of rain, and other water, to show that the substances required in the growth of such plants was contained in abundance in the fluids employed.

When water, made chemically pure, is employed in that state to promote the growth of plants, a failure is the certain and inevitable result. That able experimentalist Cuthbert Johnson, has varied his experiments in every form, and always with the same termination, the death of the plant, in a longer or shorter period. Dr. Thomson was equally foiled; he finding that plants so treated vegetated only for a short time and then failed, never perfecting their seeds. Other experimentalists have been equally unsuccessful, and the theory now more rationally adopted, is, that water is only valuable as a solvent for the nutritive matter required by plants; in other words it is only useful as a liquid manure. Some plants of the bulbous rooted kinds, that are made to flower in water, such as the tulip and hyacinth, are obliged to be planted in the ground every other year, or they refuse to flower, or even, finally, to vegetate. This is accounted for by the fact that the store of nutritive matter provided by nature in the bulb, and drawn from the earth, was exhausted by vegetating for one season in water.

It has been supposed by some, the earths most common in good soils would, if watered with pure water, support vegetation. But the experiments of M. Giobert proved the fallacy of this supposition. He mixed silica, alumina, lime, and magnesia, in the proportion in which they are found in the best soils, and then in vain attempted to grow plants where pure water was used. This was not the case when water impregnated with animal and vegetable matter, or that from a dunghill was used, as the most luxuriant vegetation ensued. All the efforts to induce plants to appropriate to their growth matter in any other state than that of solution have failed. The finest and most impalpable particles of matter are rejected equally with the coarsest. Davy ineffectually tried charcoal, reduced to the finest possible state; and Chaptal and Johnson equally failed with the earths, saline substances, and with other organic matter. All nutrition, then, in plants, as well as in animals, is performed by substances in solution, or æriform; and it is hence also evident, that manures are only useful to plants when presented to them in a liquid form, or when they assume that form in the earth by combination with water.

We have before expressed our full conviction that all vegetable growth, or nutrition, is the result of a chemical action not dissimilar to that of the voltaic battery, or the agency of electro-magnetism. Of the existence of such electro or voltaic currents, vegetation itself furnishes the most conclusive proof. To this the vegetable sensibility of the mimosa must be attributed; and the currents as they exist in the fluids of plants, may, under the microscope, be distinctly observed in those plants with transparent cuticles, such as the *Caulina fragilis*, or *Tradescantia virginiaca*. We further infer this action, from the general similarity existing in the functions of vegetables and animals, and their nutritive powers. In animals the nervous system furnishes conclusive evidence of such agency, and the organization of the plant may not unreasonably be referred to the same cause. "Perhaps,' says Professor Henslow, "until the contrary is proved, we may consider the addition of *sensibility*, to the living principle, as the characteristic property of animals; a property or quality by which the individual is rendered conscious of its existence, or of its wants, and by which it is induced to satisfy these wants by some act of volition." Dr. Green, in quoting this passage from Prof. H., goes farther, and says, "We are inclined to the belief, however difficult it may be to demonstrate it, that a quality strictly analagous in its results, to this property in animals, belongs to vegetables."* Every new truth in vegetable physiology goes to confirm our previous opinions of the nature of vegetable nutrition, and develop the rationale of manures. The earths will not cause vegetation, be they ever so nicely proportioned; water cannot support the plant, when used in a pure state; the salts of manures, constituting their most efficient part, are fatal to plants in a concentrated form, or when present in too large quantities; but when these are combined, the growth of the plant they are brought to act upon, is certain and rapid. It is scarcely possible there should be a clearer or more beautiful illustration of the nature of the chemical action necessary to the growth of plants than this combination affords. In this case the different earths constitute the battery for the generation of the voltaic current, the particles constituting the plates of the great machine of nature, and the finer the earths are made the greater the number of pairs, and consequently the more active in their results. In itself, however, this battery is powerless; it is only when the plates are plunged in an exciting fluid, when water containing the salts necessary to produce this action is applied, that this current, so indispensable to the growth of plants, indeed, without which no vegetable (and perhaps no other) organization is possible, is fully developed. To us this philosophy of vegetation appears extremely simple and natural, explaining more satisfactorily than any other theory, the action both of vegetable and mineral manures.

If the plates of zinc in the common battery are corroded or destroyed, or those of copper rendered worthless by continued action, it is clear these defects must be supplied before the desired effect can be produced. So if any of the necessary earths be absent, or if they have been exhausted by cultivation, a healthy vegetation can not be expected until this deficiency is remedied. And if the proportions of earths are ever so perfect, if the exciting agents, the salts and the water, are absent, there can be no growth; the current, which alone carries into circulation the substances that go to the formation of the plant, cannot exist. In this way only, can the prodigious fertilizing powers of some liquid, or dry manures that when applied to the soil become liquid, be satisfactorily accounted for. Urines, poudrette, and the sewerage water of large cities are instances of this kind of agents.

But whatever opinion may be entertained of the theory here advanced, it cannot be disputed, that independent of the substances more particularly necessary to excite voltaic action, there are few articles so rich in the materials required by plants, as are what are termed the liquid manures, or the drainings of the barn-yard or the stables. This fluid contains the most essential of the salts employed in accelerating vegetation, and their loss to the farmer is irreparable. There is some little difference in the constituents of the urine of different animals and of man, but the analysis of one, and we select that of the cow, by Prof. Brande, will give a sufficiently accurate notion of the constituents of this substance, and the loss occasioned by not converting it to its proper use in promoting vegetation.

Water,	65.0
Urea,	4.0
Phosphate of Lime,	3.0
Muriates of Potash and Ammonia,	15.0
Sulphate of Potash,	6.0
Carbonates of Potash and Ammonia,	4.0
Loss,	3.0
	100.0

* See an ingenious paper on "Vegetable Organography and Physiology," in the 77th No. of Professor Silliman's Journal. The instances given in proof, by Dr. G., are not satisfactory to us.—*Eds. of Cult.*

Barn-yard manure, after it has been deprived by solution, by washing, and by evaporation of these essential animal and vegetable salts, is very little better than common vegetable mould. Its efficiency in promoting vegetation is gone with the exciting agents it has parted with; the remainder is only the earths which have formed the frame-work of the plants, consumed or decomposed, useful indeed, but wholly wanting in the power they once possessed.

To show the difference caused by the presence of these agents in enabling plants to take up the matters necessary for their perfection, we give the following from a statement of Prof. Johnson:

"I caused beans to vegetate under three different circumstances; the first were grown in distilled water; the second were grown in sand and watered with rain water; the third were sown in rich garden mould. The plants thus produced when accurately analyzed, were found to yield the following proportion of ashes:

Those watered with distilled water,	3.9
Those " with rain water,	7.5
Those grown in garden mould,	12.0"

Garden mould, or soil, more than almost any other abounds in these prominent elements of fertility, and the above experiment proves conclusively the importance of their presence, where luxuriant vegetation is wished or expected.

Liquid manure, then, may be considered one of the most valuable agents in the production of crops. But its use as practiced on the continent of Europe, and in China, cannot be expected here; it has as yet, scarcely been introduced into England, though where it has been tried its benefits have been most decisive. The additional labor required in the German or Flemish use of this manure is so great, that their system, unless in some limited cases, cannot be expected here; the cost would exceed the income. There is no necessity, however, for the frightful waste of this valuable material that we witness in every part of our country. Instead of this fertilizing fluid being converted to a profitable use, the great object, with multitudes of farmers, seems to be, how they shall get rid of it in the easiest manner. Ditches are constructed from their yards or stables to the highway, and the neighboring brook or river, to carry off the precious article, as though it was feared the surest means of fertilizing the soil, or producing great crops, would accumulate too rapidly.

It is to the accumulation of such salts that the sewerage of cities owes its fertilizing properties, when employed for the purposes of irrigation. A striking instance of this power appears in the astonishing increase of the grass crops on the water meadows near Edinburgh since the water from the drains of the t metropolis have been applied to their irrigation.* This result will not be surprising to any one who reflects on the composition of such sewerage; "its endless mixture of organic matters, its soot, its carbonate of lime, its decomposed animal matter, and above all its urine," combine to produce one of the most active stimulants of vegetation known.

But if farmers cannot at present in this country be at the expense of the vats for converting the whole or the most of their barn or stable manures into liquid manures, or the costly apparatus for its distribution, they can do much to prevent its waste by furnishing the means for its absorption, where there is an excess, as there usually is in the vicinity of the yard or stables, and thus save it for the use of the soil. To do this it is necessary, in the first place, that some cheap and easily constructed reservoir should receive these drainings when they are formed. In most yards a hollow may be made, without lining, if the soil is retentive, but if porous, with a lining of clay and imbedded pebbles, and this, if filled with swamp earth, the sandy wash from the roads, or even common earth, will absorb large quantities of thus liquid manure, and thus obtain a fertilizing power, equal, if not superior, to that of common barn-yard manure, treated in the ordinary manner. These earths brought to the yard, become thoroughly impregnated with the salts and other fertilizing matters of the yard, and thus preserve for the farmer what would otherwise be lost to his use. In many cases where the cattle and sheep are folded in open yards, a covering of vegetable mould, swamp earth, &c., spread over the yard after it has been cleared out, to the depth of a foot, will prevent much wnste by its absorbing power, and being thoroughly mixed by the feet of cattle with the ordinary manure, will be found in the spring when wanted for use on the field a most valuable manure. In this way, some farmers add to their stock of fertilizing materials some hundreds of loads annually. One of the most successful farmers of New-England, Mr. Clark of Northampton, has pursued this system to a considerable extent, and with marked benefit. Others also, have tested its use, and speak highly of the practice, as corresponding perfectly with the theory.

Various opinions have been entertained of the utility of piling barn-yard manures when not wanted for immediate use, or the propriety of placing them under cover. It not unfrequently occurs that the stable or yard manures made during the winter, are not required for the spring crops, and are reserved for those to be sown in autumn. The question now arises, how shall this manure be disposed of during the summer? If it remains spread over the surface of the yard exposed to alternate sun and rains, it appears clear that the most valuable parts of it, the salts and animal part, must be lost in

* See Quarterly Journal of Agriculture, No. 19.

such a course. If piled, and left without farther care, it is very apt to be damaged by excessive heat in the fermentation, and the consequent escape either in the form of gas, or that of a thick black liquor from the base of the heap, of these essential agents of fertility. Some farmers, aware of these disadvantages, have piled their manures, but in such a way as to prevent the loss or escape of any of these valuable constituents. With a little extra labor, added to that required for ordinary piling, they have converted the contents of their yards into a proper compost, greatly increasing the quantity, while all the valuable qualities are retained. This is effected by placing the fresh manures in alternate layers with such earths as we have noticed before, these earths becoming impregnated with the evolved gases, while they at the same time absorb and retain whatever liquid matter may escape from the dung during the process of fermentation. The height and breadth of these mounds must depend on the quantity of manure to be treated in this way, and the facilities for piling it at the command of the farmer.

Perhaps the most satisfactory test of the relative value of manures, may be found in the series of experiments instituted at the request of the Prussian government, by Professor Hembstadt of Berlin, and repeated with every kind of variation, by Professor Schubler, with the same results. The following table, prepared with great care from the record of those experiments, will show the value of the several manures named, on soil of the same quality or productiveness.

"If the soil without any manure yield a produce of three times the quantity of seed originally sown, then the same quantity of land when manured or dressed with herbage, grass, leaves, &c., will yield

	5 times the seed sown.
When manured with cow dung,	7 " "
With pigeon's dung,.....	9 " "
With horse dung,.....	10 " "
With human urine,.....	12 " "
With sheep dung,.....	12 " "
With human manure or bullock's blood, ...	14 " "

Thus if before manuring, an acre of land with two bushels of seed, would give a produce of six bushels, the same acre manured with urine would give twenty-four bushels; and if with bullock's blood, twenty-eight bushels. Experience shows that with roots and grasses the difference will be about as great on soils of the same quality; and these facts evince more conclusively than any reasoning can, the value of such manures, and the necessity there is of the farmer's making the best possible use of them, if he would succeed in his occupation.

SILK.

At the present time, there are few branches of domestic industry, that promise so good a remuneration for the time and capital employed, as the production of silk. The mulberry fever is over; the best varieties of trees are now as much below their actual value, perhaps, as a year or two since they were above, and a man with the most limited means, can now put himself in possession of trees enough, to stock an acre, which would furnish foliage for as many worms as an ordinary family could attend. Experience has shown, that there is no more mystery in the production of silk in our country, than there is in growing potatoes; that no where in the world, is the climate better calculated to promote the health of the worms, the growth of the best foliage, and consequently the finest qualities of silk. This is evident, from the numerous statements that have appeared in the journals, of the results of the last year, in the weight of cocoons, length of fibre, and also in the strength and beauty of the silk produced.

The experiments of Mr. Smith of Amherst, Mr. Clapp of Hartford, and Mr. McLean of Freehold, N Jersey, not to mention the names of many others equally successful, perhaps, show that there are few sources of profit so certain, requiring so little capital, so little hard labor, or so simple in practice, or requiring so little instruction to prosecute successfully.

One of the greatest hindrances to the silk business has been the difficulty attending the disposal of cocoons after their production. But this objection or obstacle is now removed, by the establishment of markets in all our principle cities and villages, where they are purchased with as much readiness as wheat, or wool. Perhaps, however, the best way of fitting silk for sale, is for the producer to reel, as well as grow it, and dispose of it in that shape to the manufacturer. Machines for reeling are to be had very cheap, and very little experience seems to be required to perform this operation well. In the domestic production of silk, two advantages are thus secured, the transportation of the reeled silk to market is reduced to almost nothing; and the profit on so much additional labor is retained in the family. Almost any of the Manuals of silk culture, contain directions sufficient to enable any one to perform this branch of production, after a few experiments, or a little practice.

That there will always be a market for all the silk that we can produce, can scarcely be doubted. The increase of our importation of this article shows, that it is fast passing from an article of luxury to one of common use, and that like cotton, were it plenty, as it may be, silks would be preferred to most other fabrics as summer clothing. The remarks made in Congress a short time since, on the petitions from the silk producers of Massachusetts, praying for a duty on manufactured silks, prove, that if it shall be found necessary, on the revision of the tariff, at the termination of what is called the compromise act, all needful protection will be cheerfully granted. On the whole we invite the attention of farmers and mechanics to the topic of silk culture, believing that in the present depressed state of things, there are few channels for industry, that promise better remuneration, than the domestic production of silk.

The Flour Market.

By the kindness of a friend, "C. C." to whom we are already indebted for many favors, we have been put in possession of a circular, addressed by the house of Baring & Co. to the bankers of Great Britain, on the grain crop of 1839, the causes that led to its partial failure, and its probable effect on the commercial, and of course monetary matters of that kingdom. The source from whence this paper emanates, and the exposition it gives, not only of the crops themselves, but of many other things interesting to all who wish to become acquainted with the causes that influence agriculture generally, and particularly those now operating, or likely to operate on our own market, induce us to give a few extracts from it, and a summary of its conclusions.

Many of our readers are already aware that while, in the U. States, the last autumn was one of the finest on record, the season in G. Britain was as remarkably wet, and the grain crop suffered most severely in consequence. On this point the circular says:

"The most remarkable and distinguished feature of this time, however, is the almost unbroken series of wet days, from the middle of August, till the close of the year. There was only one period of seven successive days without rain during the five months, which terminated with the month of January, and that was during the hard frost of January; but that frost and the accompanying dryness, had only a limited range, for while the people of London, were skating on the ice, rain was pouring in Scotland and Ireland. With this exception, the most careful observer could not have noted three successive days, without rain during the aforesaid period."

As a consequence of this weather, it is computed that two-thirds of all the grain grown in England, was secured in a damaged condition, thus materially affecting the resources of that country for bread. The effect of the modern improved system of agriculture, in ameliorating the condition and climate of a country is thus alluded to: "The people of Scotland say, and say truly, that the extensive system of draining adopted, has entirely altered their climate. It has given them the power to raise productions of the utmost national value and importance, which a century since were scarcely known in that country; and has rendered that country a fit abode for man in the highest state of civilization. Such a season as we have now in contemplation, occurring two or three centuries ago, would probable have carried off one-fifth of the inhabitants of this favored island, with disease; generated by continuous wet, and defective food and clothing."

As illustrating the effect which draining and improved culture, has on a climate and soil, and also some of the peculiar differences between their agriculture and ours, we give the substance of the circular on these topics, showing as it does why what is called spring wheat in Britain, invariably proves winter wheat here, if sown at the time we sow our spring wheats.

In consequence of the improvement of soil and climate from the causes mentioned, the British farmer sows wheat at his convenience, in every month, from September to March inclusive. "On the 30th day of February," says the circular, "we counted between Newcastle and Berwick, on one field of strong land, nine plows at work, on another eight, and in several four or five." • • • "We are acquainted with very intelligent experimental farmers who have, in several successive years, sowed the same kind of wheat from September to March, and uniformly with the result, that that put into the ground in February, yielded the largest product. And this had established in their minds the conviction, that the first dawn of spring was the best possible time for wheat sowing."

After reviewing the state of the last crop, and the prospects of the coming one, the circular comes to the following conclusions, which we give in an abridged form, as, if just, they may be useful in forming conclusions respecting the probable demand for grain abroad, and the consequent prices at home At the present prices of flour in England and in this country, we shall probably export largely; whether they will be maintained or varied by other circumstances, remains to be seen. That the U. States have a considerable surplus remaining of the crop of 1839, which they would be happy to dispose of at any prices approaching to remuneration, there is not a doubt; and should the harvest of the present year prove favorable, that surplus will be much increased, and add largely to our means for exportation.

The conclusions, condensed, are as follows;

1. That the unprecedented wet season of 1839, deranged and retarded the operations of the husbandmen very materially, not only in the securing of the growing crop, but in putting in the seed for the harvest of 1840.

2. That the quantity of wheat grown in G. Britain, in the hands of farmers at this time (March 1, 1840,) is greatly in excess as to quantity, over what they held at the same time in 1839.

3. That the stock of wheat and flour in the hands of merchants, contractors, or middle men, is unusually small, particularly of fine or marketable qualities; and that there has not been for 20 years, so great a scarcity of good wheat at this time of the year, as there now generally is in all the northern and western parts of the Kingdom.

4. That Ireland has abundance of grain, but put up in such a damp state as to preclude its use, unless dried either by long continued fine weather, or the kiln.

5. That with weather decidedly superior for the husbandman from this date till the next harvest, we should want no grain of foreign growth, except for the purpose of mixing with that of home production, and the quantity required for this would be under one million of quarters.

6. That with weather in the next degree inferior to that just assumed, there would not be more than a million of quarters required, to meet the demand for mixing with our partially damaged grain, or compensate for any deficiency arising from a continuation of the unfavorable weather into the spring months.

Last year 30 millions of bushels were demanded to supply, or rather prevent absolute starvation of millions in G. Britain; the conclusion above is, that 8 millions of bushels the present year, will be sufficient, when mixed with their damaged grain, to produce a similar effect. How much of this demand we shall supply, will depend on the rate of prices here and there, and on the means furnished by the country to enable farmers to get their surplus grain to market.

Setting Early Cucumbers.

Most are aware, that in the families of the *cucumis* and *cucurbita*, what are called the male and female blossoms are on the same plant, and that in ordinary cases when grown in the open air, there is rarely any difficulty arises from the non-fertilization of the female blossoms, and the consequent formation of fruit. The weavils, bees, and other insects aid effectually in the fecundation operation, by transporting the pollen or impregnating dust, and in the open air artificial assistance is rarely necessary. There are many cases, however, in which those who attempt the culture of the cucumber in frames or hot beds, find their hopes frustrated by the permature falling of the fruit blossoms, and in which artificial impregnation may be successfully practiced. The fact that such fruiting was practicable, has long been known, and in some instances practiced in the east. The date palm is a kind of tree of which the fecundating, and the fruit bearing flowers, grow on different trees. Where these are planted, or naturally grow in clusters of both kinds, as they usually do, nature requires no other causes to act, than those she has provided to secure fruit; but when, as sometimes happens one or more palms of the fruit bearing kind are found at a great distance from the male or fecundating palms, the natives to ensure a crop of dates, cut branches from those last, while both are in blossom, and conveying them quickly and carefully to the spot where they are wanted, shake them over the female clusters of flowers, and in this way secure a supply of this grateful, and to an Arab of the desert, almost indispensable fruit.

The following extract from Abercrombie, on the culture of garden vegetables, will show the importance of this process with the cucumber, and the manner of performing it.

"The cucumber bears male and female blossoms distinctly on the same plant. The latter only produce the fruit, which first appears in miniature, close under the base, even before the flower expands. There is never any in the males; but these flowers are placed in the vicinity of the female ones, and are absolutely necessary, by the dispersion of their farina, to impregnate the female blossom, the fruit of which will not otherwise swell to its full size, and the seeds will be abortive. The early plants under glass, not having the full current of natural air, nor the assistance of bees and other winged insects to convey the farina, the artificial aid of the cultivator is necessary to effect the impregnation. At the time of fruiting, watch the plants daily; and as soon as the female flowers and some male blossoms are fully expanded, proceed to set the fruit the same day, or next morning at farthest. Take off a male blossom, detaching it with part of a footstalk. Hold this between the finger and the thumb; pull away the flower leaves, or petals, close to the stamens and anthers, or central part, which apply close to the pistil in bosom of the female flower, twirling it a little about, to discharge thereon some particles of the fertilizing powder. Proceed then to set every fruit, as the flowers of both sorts open, while of a lively full expansion; and generally perform it in the early part of the day, using a fresh male flower if possible for every impregnation, as the males are usually more abundant than the female blossoms. By this management, the young fruit will be soon observed to swell freely."

Scours and Dysentery in Sheep.

The following directions for the cure of this disease, are from a paper by S. W. Jewett, of Weybridge, Vt. in the Farmers' Monthly Visitor.

"*Looseness in Sheep or scours*, is one of the most sudden and rapid disorders that attacks them; especially thin sheep and lambs. It is generally caused by eating raw, or early cut hay. The best method to cure and prevent is, to give them daily a few messes of wheat in the sheaf, a regular quantity of salt at all times. If it occurs in the winter, brine ripe hay in the seed. wheat chaff is good, as is a small quantity of oats, and a few pine or hemlock tops. Keep them a few days on ripe hay or corn fodder."

Sheep Tick—*Acarus reduvius.*

To destroy this troublesome and injurious animal, that infests so many of the flocks of sheep in all countries, some writers have recommended a wash made of

Arsenic finely pounded, one pound,
Potash, twelve ounces,
Common soap, six ounces,
Rain or river water, thirty gallons.

The ingredients to be boiled together for fifteen minutes, and the liquid, in dry weather, applied by pouring through the spout of a tea-pot or similar vessel, on the wool, which is rubbed at the time, to facilitate the absorption or passage of the fluid through it. This dressing applied twice a year is also security against the attacks of the fly, which by depositing their eggs on the skin produce worms and sores, often very troublesome.

We have never found it necessary to resort to such applications to clear our sheep from ticks, and have at shearing scarcely found one for years. The flock is a small one, varying from one hundred to one hundred and fifty, yet the means to which this exception is attributed would be equally applicable to larger flocks. We have for a long time been in the habit of using common soap pretty liberally at the washing of the sheep, and to this we think the absence of ticks is to be credited. A large tub is used for washing, into which a small stream from a brook is conducted, and the time is chosen after a heavy spring rain, that the water may be as soft as possible. The sheep is put into the tub and a handful of soap is rubbed into the wool of the neck and back of each one put in. The grease, scum, and filth, floats over the top, and as the stream flowing in is not large, the water in which the animal floats soon becomes a strong suds, cleansing the wool most thoroughly, and proving fatal to any vermin that may be about the sheep. The wool of sheep washed in this way will be very white and clean, but they should be allowed to lie in a clean grass pasture for a week or ten days, that the fleece may become again saturated with the animal oil so essential to softness and flexibility.

Wool washed in this way will be free from ticks, and though it may not weigh quite so much as if one half of the dirt was left in it, yet its superior appearance and quality, will secure a compensating price. If there are ticks in a flock it is best to wash or wet the lambs also, or the work will be but half done.

Geological Survey of the State.

The report of the select committee, to which was referred that part of the Governor,s message relating to this subject, is before us; and is a document well calculated to strengthen the impressions of the great utility of the undertaking we have always entertained. New-York has been justly celebrated abroad, and respected at home, for her great works of internal improvement; her system of universal education; her plan of prison discipline; and another ground of respect will be found in our Geological Survey of the State, should it be carried out in the spirit with which it has been conducted thus far, embracing as the survey does, not only the geology, but the botany, zoology, mineralogy, and agriculture of the state; the last, however, rather incidentally than as a distinct department.

The original time assigned for the survey was four years, which will expire in the coming July. The expense of the survey including the final reports was estimated at $104,000. Though the utmost diligence, consistent with the magnitude and interests of the undertnking, has been used by the able body of geologists and scientific men employed, it is found impossible to complete the survey in the time indicated, and the committee propose to extend the time until July, 1842. Most fortunately, however, time is all that is asked for, the original appropriation, being it is supposed, sufficient to cover the expense of the survey in the manner proposed.

The geological department will embrace the history of all the rocks and strata of the state, their character, position, dip, order of succession, and their effect on the soil, or in other words their agricultural nature. The botanical part of the survey will include a thorough "examination of the vegetable productions of the state, including the history and use of every tree, shrub, plant, grass, weed and moss." The zoological part will include a description of all the species of animals, birds, fishes, reptiles and insects, an account of their habits and rise, and their utility or injury to man. The department of palæontology, will include the figuring and description of the organic remains in the various formations in the state, thus furnishing an unerring indication to the nature, structure and place of any rock from the granite up to the coal formations. The mineralogical part will include a chemical examination and analysis of the metal, minerals, soils, mineral waters, &c. &c.

To complete these several divisions, with the maps, profiles, sections, drawings and figures required, even after the field labor is furnished, (which is as yet far from completed) it is evident will require much time and attention. That two years should be allowed for these purposes, is perfectly reasonable, and the more so, as an abrupt termination at the end of the first term proposed, would in a great measure render the labor and time already expended lost to the public. The work is a great one, worthy of the empire state, and the minds that projected and authorized it; and when perfected, will be another honorable proof of that tendency toward the universal diffusion of knowledge, which should constitute the glory, as it ensures the perpetuity of a republic.

The report before us points out some of the benefits already conferred on the state by the survey; particularly the correction of the erroneous opinions entertained with regard to the position of coal and salt, in searching and boring for which it is probable far more has already been expended in this state, where it is now well ascertained there is not a possibility of their existence, than the whole survey will cost. Besides these things, the development of the hitherto little understood resources of the state in articles of prime importance, and of great economical and practical use and value, has already exceeded the expectations of the best friends of the undertaking. By our readers, however, the influence which the survey will exert on the farming interests, will perhaps be the most anxiously looked at, and on this point we cannot perform a more acceptable service to our readers, than presenting that part of the report that relates to this subject:

"It is upon the relation which this survey sustains to agriculture, that your committee more particularly delight to dwell. Our colleges, academies and seminaries of learning, teach very litte that is of practical utility in the cultivation of the soil. All education doubtless strengthens the mind, and prepares it for continued progressive improvement in the knowledge of all subjects which fall under its observation in the various relations of life. 'But it has not been sufficiently understood that agriculture is a science as well as an art: that it demands the labor of the mind as well as of the hands, and that its successful cultivation is intimately allied with the most profound investigations of philosophy and the most elaborate exertions of the human mind.'

"To give to this first and best pursuit of man, high intellectual rank in the estimation of public opinion, is now a great desideratum in human improvement. How can this be accomplished otherwise, than by placing within the reach of the sons of our farmers, the facilities for obtaining an education essentially agricultural. Being thoroughly acquainted with the sciences of geology, mineralogy, chemistry, botany and the other departments of natural history, the cultivator of the soil would find abundant occupation for his mind within the sphere of his daily avocations. Thus the tameness of a rural life would be relieved by a succession of the most agreeable excitements. The book of nature would be ever open for his perusal, and from its pages he would learn lessons that would enlighten his understanding and improve his heart. Labor would cease to be a mere drudgery, requiring simply the exercise of brute strength. The exercise of the mind would lighten his toil. He would discover in the administration of the laws of nature, which is continually going on around him, every thing to excite his imagination and arouse his intellect. While roaming over his farm and cultivating his crops, his sphere of enjoyment would embrace all the pleasurable excitements of poetry, and the severer contemplations of philosophy.

"The present time is most auspicious for directing public opinion to the pleasures and profits of agricultural pursuits, to the sciences connected therewith, and the wide field of honor and usefulness which is now open for improvement on those subjects.

"For many years past the current of business and of opinion, has been toward our large cities. Commercial pursuits and the inordinate profits of trade in all its ramifications, have been draining the country of the choicest of her youth, and of her best educated and most enterprising men. The slow profits of agriculture and the tameness of a country life, have not suited the excited temperament of the times. But a great change is now taking place in public opinion, resulting from a reaction in all the departments of trade. The prodigals in business, care worn and oppressed, shorn of their strength and subdued in their spirit, are beginning to understand that it is of more importance, so far as the great ends of human life are concerned, to secure a quiet and peaceful competency, with freedom from undue care and anxiety, than to hazard their peace of mind, their pecuniary prosperity and the welfare of their families, upon the uncertain ocean of commercial transactions. Hence the retired and peaceful occupations of the farm are beginning more than ever to elicit songs of praise from all men. Hence your committee believe there is at the present time a greater readiness than usual in the public mind to discern the moral and pecuniary advantages of an agricultural life, and to estimate more properly those studies which are calculated to enhance its profits and pleasures, and elevate its intellectual rank among the various occupations of man. Your committee hope and believe that the Geological Survey of the State, from the amount of information which it will disseminate on subjects about which very little hitherto has been known, will lay the foundation for a broad system of agricultural education, which they believe to be very much needed, and which they think the public mind is fully prepared to estimate and cherish. The public munificence will be well directed in continuing to an honorable completion this undertaking, if it shall contribute in any degree to awaken a spirit of inquiry among the cultivators of the soil, after knowledge in those departments of science which are intimately connected with the great art of agriculture, upon the successful promotion of which is based the best interests of our country.

"This survey presents itself to your committee in a most interesting point of view, when examined in the light of political economy. If the legislation of our country is well directed, when it aims at advancing the national wealth, by protecting and encouraging any branch of industry, or promoting facilities for rapid and cheaper intercommunication, why not also well directed when it seeks to unfold to man the bounties of Providence which lie concealed within the crust of the globe. When it shall be ascertained in the progress of our discoveries, that while one position of our state abounds in rich and verdant pasturage, another portion is remarkable for its successful tillage, another portion contains inexhaustible mines of valuable metals; one part yields its abundant supples of lime and marble, another part its contributions of gypsum, salt and coal, and every part its share in the great aggregate of our national wealth: and when the whole shall be brought under the active control of the ingenuity, the industry and enterprise of our citizens, and made subservient to the interest and happiness of man, who can set bounds to the extent of our resources, or sum up the total amount of our greatness.

"Great Britain is probably more indebted for her national aggrandizement to her mineral wealth than to all other causes combined. Without her coal, her metallic ores could never have been drawn from the depths of the earth where they lie concealed; or if found near the surface they could never have been profitably refined. Without her coal, her Birmingham, her Sheffield, her Manchester and other manufacturing towns would never have existed. Without her manufactures, her commerce would be prostrated. Without her commerce, her wealth and her influence among the nations of the earth would speedily pass away

"The Geological Survey of the State, and the results which your committee hope it will produce, cannot be contemplated in a moral point of view without the liveliest interest. The wisdom and benevolence of the great Creator of the Universe are everywhere displayed in his works: and the more the investigations of philosophy and science are brought to scrutinize those works, the greater that wisdom and benevolence appear.

"In the formation of organized bodies, that is, in the structure of animals and plants, the most superficial observer cannot fail to discover a beautiful and refined mechanism; but if we cast our eyes upon the ground and look at heaps of gravel, sand, clay and stone, it seems as if chance only had brought them together; and that neither symmetry nor order can be discovered in their nature. But a closer examination soon convinces us of that, which reasoning from the wisdom and design manifested by other parts of creation, we might beforehand have very naturally been led to expect, viz: that in all the varieties of form and structure and change which the study of the mineral kingdom displays, laws as fixed and immutable prevail as in the most complicated mechanism of the human frame, or in the motions of the heavenly bodies; and if astronomy has discovered how beautifully 'the heavens declare the glory of God,' as certainly do we feel assured by the investigations of geology that the earth 'showeth his handiwork.'"

CANKER-WORM.

In the second number of the current volume, Mr. Moore, of Berlin, made an inquiry respecting this destructive insect, and whether any preventive to its ravages had been discovered. We have received from a "lover of good fruit," a supplement to the Connecticut Courant, giving a history of the insect, its transformations, and the preventive introduced by Mr. Dennis, of R. I., with certificates of its efficiency, which we may at another time lay before our readers; at present we can only give an abstract of the most essential parts of the paper.

This insect belongs to the Phalæna family; the female of the perfect insect without wings, while the male possesses them, consequently to deposite her eggs on the tree, the female must crawl up the body, and on this well known fact has been founded most of the plans adopted for preventing their devastations. If they once ascend, the eggs are deposited in thimble like clusters near the extremity of the branches, and these hatched by the warmth of the spring, produce the worms that do so much injury. Arriving at maturity in about four or five weeks, the worm descends to the earth, and undergoes transformation, and the perfect insect emerges to again run the same course of propagation and destruction. The larvæ of the canker-worm are known as inch worms, surveyors, or the *geometridæ* of the naturalist. To keep the impregnated female or grub as it is usualy called, from the tree, is the object of all preventional measures.

Tar has been recommended, and while soft or in a semifluid state it arrests the grub effectually. But when cold, or after rain, the surface becomes smooth and the grub passes without difficulty; besides tar, dried on the bark, must injure the tree. A trough made of tin and fastened to the tree has been recommended, the trough filled with oil, but tin is too unyielding, and cannot be enlarged, as easily as a material for that purpose should; and is too destructible by the weather. Flax bound round the tree tightly, will keep them down for a time, but they will eventually pass, and the covering were it effectual would be too expensive from frequent renewals.

To obviate these objections, Mr. Jonathan Dennis, of Portsmouth, R. I., invented, in 1836, a circular lead trough which is effectual, and has since been patented. "This trough and its roof is made of one strip of sheet lead, about three inches wide, but in the form of the top of the figure 2 inverted, with the foot cut off; thus forming a roof and trough in one strip, and then leveling it round the tree so as to conform to the shape of the tree. It is made so large as to leave a space of one inch in width between the trough and the tree. The ends are then soldered together, thus forming a trough completely around the tree with a roof over it. Three or more nails are tacked into the tree to support it; and the space between the trough and the tree is filled with seamed hay, straw, husks, tow, cotton waste, or any other substance which will prevent the insects from ascending between the trough and the tree, and can be evenly and easily pressed by the growth of the tree." The expense is from 30 to 40 cents per tree, or according to the size; and five gallons of fish oil that costs 40 cents a gallon was sufficient to fill the troughs for 115 trees, for one year. It is found necessary to replenish the trough about three times in the course of the year, and it is of use during the periods when the ascent of the grub is most common to sometimes stir the oil in the trough The experiments made with this apparatus, the statements and certificates would seem to show have been very satisfactory; and, indeed it is evident thas as the grub cannot pass the oil, if other access to the tree is debarred, the tree must be safe. Whether the canker-worm is to be a permanent nuisance to our trees remains to be seen; in the mean time any preventive to

their depredations will be hailed with pleasure by the horticulturist.

If the following mode of preventing the ravages of this insect should perform what it promises, it may be considered one of the greatest discoveries of the day for the fruit grower, in those districts infested by the worm. We copy from the Hartford Courant:

"Capt. Chauncey Treat, of East Hartford, has discovered a complete remedy against the ravages of the canker-worm, simply encircling the tree at the surface of the ground with Scotch snuff. The writer of this has examined the trees on Capt. Treat's premises, and found the circle of snuff completely fringed with thousands of dead worms. These trees were all tarred, and where the snuff was used, no worms appeared on the tar, and where the snuff was omitted the insects nearly covered the tar."

HORSE RAKES.

Having received several inquiries as to where these rakes may be had, the price, &c. and not being able to give the desired information, we publish the annexed descriptions and cuts, which are sufficiently plain, we trust, to enable any common carpenter to construct one, either of the common or revolving rake.

The Common Horse Rake—[Fig. 56.]

This is made of a piece of strong scantling, 3 inches square, and 10 feet long, into which about 15 teeth are inserted horizontally, and made of strong white ash or other tough wood. The teeth should be about 22 inches long, and one inch by 1¾ at the place of insertion, and tapering on the under side, so as to give them a slight turn upward at the point to prevent their running into the ground while using. The draught ropes are attached to the end of two projecting pieces of wood parallel to the teeth at each end of the rake. These projecting pieces should be about one-third of the length of the teeth. Those unskilled in the use of the rake, sometimes attach the ropes at once to the ends of the head; in this way, it becomes almost entirely unmanageable. The forward ends of the draught ropes are to be fastened to the horse's collar, leaving space enough between the horse and rake for the collecting hay. Handles, like those represented in the figure, (fig. 56,) are to be inserted in the head near the middle, for guiding the teeth and lifting the rake from the ground when necessary.

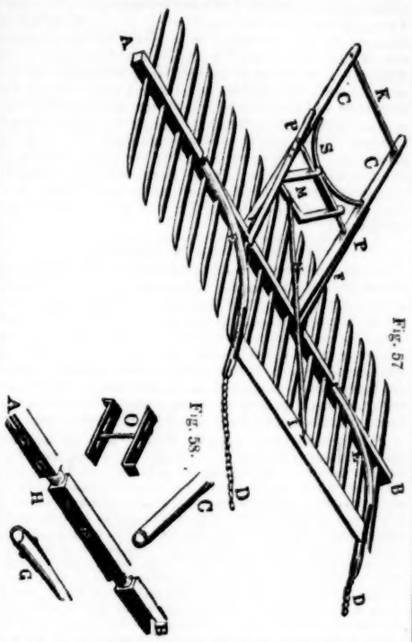
In using this rake, instead of the teeth moving onward upon their points, as in the common hand rake, they run along flat upon the ground, passing under and collecting the hay; when full, the handles are thrown forward, the rake emptied, and lifted over the winrow for another load. The rake thus passes backwards and forwards across the field, always emptying opposite the last heap, and thus forming regular winrows at right angles with the path of the rake. A few hours' practice will enable any one to use this rake without difficulty, the only skill required consisting in keeping the points of the teeth just so low as to pass under all the hay, and yet not run into the ground. When small obstructions occur, the handles are depressed, thus causing the teeth to rise, and the rake passes freely over. Large obstructions, as stumps and stone heaps, require the rake to be lifted from the ground.

The chief recommendation of this kind of rake, is its cheapness and simplicity. A good one need not cost more than two dollars. It may also be used on rougher ground than the revolving rake, as it is more easily lifted over obstructions. Where the ground is very uneven, the teeth should be much shorter. When one becomes well accustomed to the use of it, work may be done nearly as fast with this, as with a revolving rake, though much more laborious. Twelve acres of hay, part of it yielding nearly three tons to the acre, on a meadow of the writer, were raked into winrows, by means of one of these rakes, in about *six hours*, working time. It possesses another advantage over the revolving rake—it may be used for scraping the winrows into heaps for drawing, and if the hay is stacked in the field, for drawing the hay to the stack. A man with a rake and horse, not only raked the hay, but drew it at the same time to the stack, a distance of from ten to twenty rods, as fast as an active man could pitch with a fork. A hand rake need scarcely ever be used on the meadow, as all the scattered hay may be raked up in a short time after the rest of the hay has been drawn off.

The horse rake is very useful in raking stubble of wheat, and eminently so in pulling and gathering peas.

Shafts, instead of ropes, have been attached to the head of the rake, and have been strongly recommended; but they diminish the simplicity of the rake, and appear to possess no advantage on the whole, and for gathering and drawing hay, are positively detrimental.

The Revolving Rake.



This is much more complex in its construction than the common horse rake, but possesses advantages over it in ease and expedition in raking. Its peculiar advantage is the facility with which it may be unloaded, requiring for this purpose but a slight elevation of the the handles, and without stopping once in crossing the whole breadth of the meadow.

Its construction is as follows: The head A B, fig. 57, is a piece of strong scantling, three inches square and ten feet long, through which eighteen holes, one inch square, are made to receive the teeth, which are pieces of the strongest white ash, one inch square and three feet long, projecting equally on both sides of the head when inserted, and forming a double row of teeth, each about eighteen inches long. The draught chains or ropes, D D, are attached to the forward ends of two curved arms E E, which are connected at their other ends to the head of the rake by iron straps passing round the head so as to allow it to revolve freely. G, fig. 58, represents a portion of one of the curved arms, showing the hole formed by the iron strap, and H represents a part of the head which turns in this hole. These arms are held firmly together by the cross piece I. An improvement in the curved arms is made by constructing them of two pieces at right angles, in a form similar to a carpenter's square, the first or shortest piece rising perpendicular from the head, and the other projecting forward, and to which the draught chains are attached. By this construction, more space is allowed beneath these arms for the collection of the hay.

The cross rod K, connecting the handles C C, serves for guiding and managing the rake. These handles are connected to the head by a contrivance precisely similar to that of the curved arms. At the middle of the handles is a cross rod P P, upon which turns the small frame M, which is connected (by turning joints) by means of the rod N, to the cross piece I. This rod must be of just such length, as to cause the frame M, when pressed down upon the teeth by the handles, to touch them within about half an inch of their points; by this, the teeth are pressed flat upon the ground while raking. To empty the load, this frame is raised by the handles beyond the reach of the teeth, and they pass it freely without touching. The rake is unloaded by means of the following contrivance. Outside of the handles C C, are two pieces of wood F F, turning freely upon the two projecting ends of the rod P P, as pivots with their lower ends resting upon pieces of iron fastened crosswise on the head of the rake, just outside of the joints connecting the handles to it. The shape of these pieces of iron is shown in a detached view at O, fig. 58. When the handles are raised, the pieces F F are thrown forward on these pieces of iron until they strike the projecting part of them, when they immediately act as braces, and cause the rake to rise with the handles. The points of the teeth thus strike in the ground, and the horse continuing in motion, causes the rake to make a semi-revolution, emptying the load, and throwing the back row of teeth forward to be filled as before. The handles C C, should be perfectly parallel, that the pieces F F, may play freely. S is a strong iron brace, fastened at each end to the handles, and at the middle to the cross rod P P.

The cost of this rake is about six dollars.

The revolving rake is better adapted for use on large farms and smooth meadows, and the common horse rake on small farms and rough meadows.

Report on Agricultural Schools.

We are gratified to observe that the important subject of agricultural and horticultural schools has not been lost sight of by our farmers; and we trust it will not be until either by private or public munificence, the influence of such institutions are fairly tested among us. We have the fullest confidence that a school on the plan of some of those existing in France, Germany, or Prussia, would not only render the most essential aid to the cause of agriculture, but be the means of rearing up for the public service a body of men with mental and physical powers, well trained for the most arduous employments or duties. One such school put in successful operation, would furnish an example for many; and we might hope to see in every state such schools, as we now see colleges, in every direction, diffusing the lights of science and knowledge.

We have before us an able Report, made to the Agricultural and Horticultural Society of Seneca county, at the annual fair, held in Ovid, on the 4th of March, 1840, by A. B. Dunlap, Esq. It is a well written and just exposition of the claims of the agricultural public to such institutions; of the benefits they would confer; and the principles on which they should be established. We should be glad to hear that the enterprising and wealthy farmers of that beautiful section of the state, had resolved to carry out the design here so skilfully presented, and set the Union an example of the first agricultural school this side the Atlantic.

Our space will only allow a few limited extracts, where we should be pleased to quote largely. In answer to the question, "Why has not the farmer attained that rank in society to which his dignified calling entitles him?" Mr. Dunlap answers correctly and obviously—"*The farming class is not sufficiently educated.*"

The report proceeds to point out the kind of education necessary for the farmer, the advantages accruing from such an education, and the impracticability of obtaining it at any existing institutions. On these topics he has the following cogent remarks:

"No system of education at present in operation in this country, combines so perfectly the great objects to be aimed at, namely, the full development of the physical, intellectual, and moral powers, as would be done in an agricultural school. Here the student could obtain that kind of knowledge which would make him a thinking and observant being. Here he could be taught in such a manner, as would make him capable of inquiring into the cause of things, and of making his own logical deductions. Here he could obtain an education that would make him not a mere bookworm—but leave him an active, useful citizen. An education that would effect the greatest good possible, with the least expense."

Art, is the name given to the operations that arise from necessity; science is the result of leisure and reflection. Herschel has said that "science is the knowledge of the many, orderly and methodically digested and arranged, so as to become attainable by one." It is the union of art and science that is required to render agriculture what it should be, and what it assuredly will be, however long such a consummation may be delayed. On this point the Report says:—"There are no schools in this country where the science and art of farming are united—where theory and practice are combined. This is what is aimed at in an agricultural one—it aims to throw around what is often called a dull and plodding art, the dignity and allurements which science can impart—to place the business of the farmer upon the broad basis of the unchanging laws of nature. This end cannot be accomplished upon the farm to any good purpose, because there are no adequate means within the operator's reach. The farmer's son has not the implements necessary for the work; he has no one to direct him in his investigations. Years have rolled away, and how little progress has been made in investigating and understanding the laws of nature; and especially the bearing of these laws upon the cultivation of the soil. The great reason is, that the man of science is at present confined to his closet, and does not furnish the application of the general principles he inculcates; and even when he attempts this, he makes such errors as to bring his well established laws into doubt and contempt among the practical class. On the other hand the mere practical man, is looked upon as of an inferior rank in the scale of being, because he cannot explain none of the wonders, and is blind to so many of the beauties that surround him. The very reason why the business of the farmer has not attained that elevated stand to which it is justly entitled, is because the farmer is conversant with matter without understanding a single law by which it is governed; hence it is that science and art mutually aid and advance each other—that the one gives dignity and efficiency to the other."

The plan recommended in the Report, is the same in substance as the one recommended in the May number of the Cultivator, for 1839, and is probably one embracing all the essential points of an agricultural school. Experience here, as in Europe, would doubtless suggest improvements; but the grand object of such institutoins is so direct and easily defined, that any trifling defects in arrangement could hardly vitiate their usefulness. Of the utility of such schools no one entertains a doubt; and their practicability we hope to see tested, either by

state munificence, associated enterprise, or individual liberality.

We have also received from the same source, an ADDRESS, delivered on the 20th of March, 1840, before the Agricultural Society of the south part of Seneca county, by Wm. R. Schuyler, Esq.

It is an excellent address, enforcing in strong and appropriate language the utility of such associations, and the immense benefits they confer on the community; and illustrating his positions by reference to recorded results, particularly those effected by the agricultural law formerly in existence in this state. One of the most favorable signs of the present time, we consider to be the multiplication of such associations, as they can scarcely fail to produce the best effects by bringing farmers into contact with each other, and making more extensively known the most esteemed and profitable modes of culture, the most valuable animals, and the most productive and useful vegetables. We have room for but a single extract from the address.

"The rapid advancement making in the agriculture of other countries, admonishes us that if we wish to be successful competitors, we must become not only practical but scientific operators. Says an elegant writer, 'a nation must seek for wealth and power, by encouraging that active and profound knowledge, which ascertaining the principles, the proportions, the combinations, the affinities of the mineral; the habits, the productions, the qualities of the vegetable; and the manners, the instinct, the properties whether useful or noxious, of the animal kingdom, can give to every substance which it possesses or can obtain, every appropriate use; can procure for them their utmost value; can convert them at will into instruments of pleasure, of riches, of grandeur, and of power.' No people have yet attained this high point of national improvement; but exactly in proportion to the progress of improvement, will be the relative station which each and every country will occupy in the scale of nations. How important, then, to give to the pursuits of science connected with agriculture, every encouragement which they require or which they can receive."

We say to our public spirited farmers, go on. Give such associations energy and support, and in an increased product, and improved agriculture, you will find an ample reward.

Raising Calves.

In the interesting account furnished by Robert Colt, of Pittsfield, Mass. in reply to queries addressed him by the Commissioner, of his method of farming and its results, the following occurs as the 21st question and answer.

"What is your management of calves intended to be raised?"

"Take the calves from the cow, and feed them with 3 quarts of new milk twice a day for three months, adding after they are 3 weeks old, a little rye and corn meal scalded, then weaned off upon dry provender and grass, roots, or hay as the season may be."

In the same number of the N. E. Farmer, in which we find the foregoing, a "Farmer" gives his method of rearing calves which we also copy:

"Take the calf from the cow when quite young, say a day or two old, learn it to drink new milk first, in such quantity as it will take, as there is not much danger of its taking too much when so young. When it drinks well, skim the milk that has stood from morning till night, or night to morning, and heat it, so as to give it to the calf blood warm, and two quarts at a time twice a day; when the calf is a week or two old, let the milk stand longer before skimming, and as he grows older increase the quantity, till it gets to four quarts at a time, twice a day. If the milk is scalded, and then cooled to blood heat it will be better. If the milk is given cooler than blood heat, it causes the calf to scour, which is injurious."

We have tried repeatedly these distinct methods of feeding on new milk and on skimmed milk, and have never been able to perceive any material advantage in favor of the former. Feeding with skimmed milk makes rather more work than feeding with new milk, or allowing the calf to suck the cow, as is practiced by some, but the cream saved by using skimmed milk, will amply repay this extra labor, and in the course of the ten or twelve weeks the calf should be fed, the butter made, will nearly approach the actual value of the calf. Calves soon begin to pick a little hay or grass, and they should be freely indulged; roots, such as the turnep, or carrot, cut fine, or what is better, grated, may be given them early with advantage.

The Sugar Beet.

The following answer to the inquiry of J. J. B. of New-Rochelle, was accidentally omitted in the May number. His soil, a sandy loam, appears to be the right kind required for roots, *when made sufficiently rich*. To produce the roots in perfection, the soil should be by nature, or made such by cultivation, a deep vegetable mould, and *great* crops can be grown on no other. Where the land to be put into roots is not sufficiently rich, and manure is with difficulty obtained, that which is applied, should be so given, that the roots may derive the full and immediate benefit of it. If fresh stable manure is used, the manure may be placed in furrows, the depth of which must depend on the state of the soil, as it regards a capacity to retain moisture, and on the earth thrown back by the plow over this, the seeds are to be sown. In France and in England, where the sugar beet and the ruta baga are such prominent objects of culture, manure in the form of bone-dust, or poudrette, is deposited in the drill furrow by the same machine that plants the seeds; and a small quantity is in this way found to produce a greater effect on the root crop, than a much greater quantity would applied in the usual way over the whole surface. Roots of any kind require a vigorous start in the outset, and the application of manures directly to them secures this effect. Some soils are too dry and light for the beet or turnep. This difficulty may be removed by giving them more capacity for the retention of moisture, by the application of clay, or clay marl, a remedy which has been tried with the most decided success in a multitude of cases. Much of the desired effect of manures is lost on such light and dry soils, and their texture should be improved, before the cultivation of roots can fully succeed on them. We approve the determination of J. J. B. to grow roots. They are now one of the most important of our crops, and when a more improved and profitable system of farming shall prevail, their value both as a crop, and an ameliorator of the soil will be still better understood.

Washing Sheep in Germany.

Is is well known to wool growers, that the species of Merino produced from the Infantado or Nigretti flocks of Spain, have a superabundance of grease, almost of a pitchy nature, and which cannot be extricated without some labor and care. Mr. Carr, an English traveler in Germany, gives the following account of the process of washing this wool in the north of that country, where the Infantado is preferred by the small farmers as more hardy, though producing wool a shade inferior to the Electoral Merino, or what we call the Saxon breed.

"The greatest care," says Mr. Carr, "is at all times necessary in the operation of washing. A warm mild day, without harsh or drying winds is indispensible, and care must be taken never to rub the fleece with the hand. A marl pit, with a depth of from 8 to 10 feet of clear water, is a favorite washing place, and is thought to become better every year. The sheep are thrown in from a stage, in the evening, and made to swim the whole length of the pond (20 or 30 yards) between rails, with boards on one side, from which women or boys assist them through their bath, by placing wooden rakes or crooks under their chins, and so passing them onwards. When the water has dripped from the fleeces for an hour or two, the sheep are put into the house for the night, as close together as possible, in order to cause the greater evaporation, and the next day are swung through the same pond three or four times, the last time the head being rubbed a little, and they are kept in the house (well supplied with clean straw) on dry food, for three or four days, until the wool by sweating, as it is termed, has recovered its characteristic softness, when the shearing takes place."

Mortality among Swine.

The New-England Farmer, of January 29, contains an article from the pen of G. P. Burnham, Esq., of Roxbury, giving an interesting account of a trial made by him in feeding swine with *hay tea*, that is using a strong decoction of hay to mix with their other food, which had been refuse cabbages, beets, carrots, with an occasional mixture of ruta baga, and as these partially failed, with more ruta baga and sugar beet, the whole boiled and mixed before feeding to them. Mr. B. was induced to adopt the hay tea, from the flattering account given of its properties by Mr. Saunders, an English breeder of pigs, whose account was copied into the "American Swine Breeder" of 1839. Mr. Saunders states that in a week or fortnight after using the tea, his hogs rapidly improved in appearance, and gave every indication of its nutritive power, and its agreement with them. Mr. Burnham's experience was directly the reverse of Mr. Saunders. From the commencement of mixing the *hay tea* with their food, they declined in appearance, their coats grew rough, and *all* breeders, shoats and pigs, fell off sensibly. Mr. B. did not attribute these results to his new mode of feeding, but continued its use, until nearly all his fine breeding stock, consisting of Chinese, Berkshire, and Mackay sows and boars, all of the best selected kinds, with numbers of pigs, both of the pure breeds, and crosses of several kinds were destroyed. The appearance, on dissection in most of the cases were very similar. "The lower intestines completely clogged and tied up into knots, the lungs spotted and inflamed, and the liver full of small biles or pustules." The knotting of the intestines was the same in all, but the more protracted the case of the animal was, the worse in general was the state of the lungs and liver. With the greatest care and attention Mr. B. was unable to pass any medicine after the attack, the contractions being impervious. His losses, as stated in his letter, were including young and old between 40 and 50. Mr. B. had discontinued the use of hay tea, and returned to his former system of feeding. He does not assert that the hay tea was the cause of his losses; but the probability is certainly very strong that it was. The hay used was clover and herd's grass.

There can, we think, be little doubt that the astringent qualities of the tea was the cause of the evil. We have given hay tea to calves, mixing it about half and half with milk, and they suffered no injury from that mode of feeding; but they fed daily on grass, which would have counteracted any such tendency. Consumption would have produced the results described by Mr. B., viz: indigestion, inflammation, and consequent death.

Every farmer and poulterer knows that nest eggs are very liable to be frozen and spoilt in the spring of the year, and when cracked are eat by the fowls. To prevent this, manufacture a few eggs from lumps of chalk, and while they are secure against freezing, they will be accepted by the fowls as veritable eggs, and prove very durable

Cleaning Fruit Trees—Pruning.

Mr. Willot, in the Horticultural Register, gives the following directions for cleaning fruit trees, and preserving them from insects.

"The destroying of insects is also another important point in the culture and well being of fruit trees, which is effected by clearing and washing the outer bark—a process which I have reason to believe, can be done more effectually in the winter than in the spring. In the operation, care must be taken to remove all the loose outer bark, by scraping it from the tree so as to not injure the inner bark. In winter pruning, any large amputations or wounds made, should be pared smooth with a sharp knife, to which the following wash may be applied, viz: equal parts of clay and cow-dung well mixed and composed together, and a moderate portion of potash added, and should be made of such a consistence as to be applied with a hair brush; but, if the trees are very badly *infected with insects*, I would recommend the same composition made into a thinner consistence, mixed with a quantity of the wash generally used for destroying the mildew on the grape vine, made of lime and sulphur, in the following proportions, viz: eight gallons of the composition to one pint of the wash, which apply to the bark of the trees in a thin, regular manner, with a brush, when the outer bark has been scraped and cleansed as before directed."

Mr. Willot is a strenuous advocate for winter pruning; and we think that either winter, or late pruning is preferable to pruning in the spring, when the sap is flowing upwards freely, as is commonly practiced. The sap must be elaborated in the leaves before it can be converted into wood; and the more the tree is exhausted of the sap by bleeding, the less rapidly can the wound be healed by the formation of new wood. It would be much better if the pruning of orchards and fruit gardens was performed more frequently, and not at such long intervals, so as to prevent the infliction of the severe wounds made by the removal of large branches. On skilful and judicious pruning much of the quantity and excellence of fruit, as well as the health and duration of the tree, is depending. The opinions of the Chinese on pruning appear to be well founded, and worthy of notice. The writer is speaking of the mulberry, but the remarks are applicable to other trees—"The last month of the year (January) is the most favorable for pruning: the month that follows, less so. In the last month of the year the sap is quiescent, and the cessation of labor in the country leaves much leisure to the cultivators. Those persons who prune in the spring, only do it in order to peel them easily, (to make paper,) but that causes the mulberry or other trees, to lose a large quantity of sap."

DOMESTIC ECONOMY.

Plain Rusk Pudding.

Rusk your bread in the oven, and pound it fine; to five heaped table spoonfuls of it, put a quart of milk, three beaten eggs, three table spoonfuls of rolled sugar, a tea spoonful of salt, half a nutmeg, and three table spoonfuls of melted butter; bake an hour. It may be eaten without sauce.

Wheat Flour Pudding.

Stir into a pint and a half of flour, a quart of milk. It must be done gradually, so that there may be no lumps. Beat seven eggs and put in, and add two table spoonfuls of melted butter, and two tea spoonfuls of salt. Grate in half a nutmeg. Half a pound of raisins may be added, but if the pudding is to be baked, they must not be put in till it has cooked long enough to thicken, or they will sink to the bottom. This flour pudding may be either baked or boiled, requiring an hour and a half to bake, and two hours to boil. If boiled the bag must not be more than two-thirds full, or it will burst in the boiling. It must be put into boiling water and kept boiling till done. After boiling a few minutes, turn the bag over; it will render the pudding light. Flour puddings must be eaten when cooked, or they fall directly. Serve them up with rich sauce

Boiled Rice Pudding.

Into a quart of boiling water put two tea-cupfulls of rice, two tea spoonfuls of salt, and let the rice boil till soft. Then stir in a quart of cold milk, and half a pound of raisins, first taking the rice from the fire. Put in a couple of beat eggs, and half a grated nutmeg. Replace it on the fire, and let it boil till the fruit is soft. Sauce, butter and sugar.

Baked Rice Pudding.

Boil a quarter of a pound of unground rice, in a quart of milk, till soft; then stir in a quarter of a pound of butter; take it from the fire, put in a quart of cold milk, two tea-spoonsfuls of salt, and a grated nutmeg. When lukewarm beat four eggs with one-fourth of a pound of sugar, and stir it into the pudding. Add half a pound of raisins, and turn the whole into a buttered pudding dish, and bake it three quarters of an hour.

Rice Snow Balls.

Take small tart apples, pare them, and take out the cores with a knife, filling the cavity with a stick of cinnamon or of mace. Put each one in a small floured bag, and fill the bags about half full of unground rice. Leave plenty of room for the rice to swell. Put them in a pot of water, with a table spoonful of salt to two quarts of water. Much water will be required, as rice is a great absorbent. Boil an hour and twenty minutes, then turn them carefully out of the bags into a desert dish, and garnish them with marmalade cut in slices. Serve them up with butter and sugar.

DICTIONARY OF TERMS
USED IN
Agriculture and its Kindred Sciences.

BREEDING. A term applied to the improvement of animals by crosses, or breeding from new varieties, by which new and superior kinds are obtained, and any desirable quality, whether of size, propensity to fatten, or for milk, secured. It is only within the last half century that the business of breeding has received the attention it deserves; and the astonishing improvement made in the animals of those countries where it is best understood and practiced, shows that few steps in reducing agriculture to a science, have been attended with happier consequences. Such has been the result in England and Scotland, that the average individual weight of the immense numbers of cattle and sheep now annually slaughtered at Smithfield, is nearly or quite one-half greater than it was at the time the first efforts at improvement by breeding commenced. Of the many who have distinguished themselves in Great Britain, as breeders, Bakewell and Collings, Culley and Berry, are noted for cattle, and Bakewell and Ellman have distinguished themselves in the improvement of sheep. The principles of breeding are few and simple. Let the object desired in any particular race of animals be distinctly understood, and the animals for breeding or crossing be selected with reference to these objects. It should be remembered, that in determining the character of the offspring, it is found by experience, that the influence of the male is greater than that of the female. It is by the observance of these, and a few other principles equally plain and simple, that Bakewell and the Collings raised the Durham short horns to so high a standard; that the first named gave to the Leicester sheep a form and weight of which former sheep growers had never dreamed; that Ellman has brought the South Down to within a few grades of the Merino in fineness of wool; and that the improved varieties of swine, such as the Chinese, Berkshire, and others, have so far exceeded in value and actual profit to the farmer, the common kinds of this animal. Great efforts are at this time making in this country, and with decided success, to raise the standard of our domestic animals, by importations from abroad, and careful breeding at home. The results are such as to encourage the belief, that in a few years first rate animals of all kinds will be as common here as they have hitherto, and most unfortunately been rare.

BROADCAST. The putting of seeds into the earth is performed in various ways, as by broadcast, planting in hills, drilling, and by dibbling. Grain in this country is usually sown broadcast, while maize, potatoes, &c. are planted. In sowing broadcast, considerable skill is required to spread the seed equally over the ground. A failure of this kind is not only injurious to the crop, but as when the grain springs up, it may be seen for a great distance, the unevenness of the sowing gives a most unfarmerlike aspect to the field. In broadcast sowing, it is requisite to take advantage of the wind, or guard against its drift, as in this way great inequalities are sometimes produced. When grain is sown broadcast, the plow or the harrow must be relied on for covering it; and unless these operations are well performed, much of the seed will remain uncovered, and be lost to the purposes of vegetation. In planting, the hoe performs the office of covering the seeds, and of course the depth can be easily regulated to any desired thickness of earth in covering. Drilling and dibbling are as yet but little practiced in this country, but they have many advantages to recommend them, both in the saving of seed and the equal manner in which the seeds used are distributed. (See these articles.)

BROKEN WIND. This is a disease of horses, in which the inspiration is performed by one effort, and the expiration by two; which is plainly distinguished by observing the flanks, and noticing that the expiration occupies double the time of the inspiration. The cause is, the rupture or running together of some of the air cells in the lungs, and the consequence is, that while the expansion of the chest fills the lungs with air, an unusual and double effort is required to force it out from the unnatural position it occupies. The origin of the disease is to be found most commonly in the previous treatment of the animal; though it is sometimes the result of inflammation of the lungs. Horses which are fed on bulky food, which are allowed but a short time to eat, or are naturally great feeders, and which are put to severe work on a full stomach, are the horses that most commonly are broken winded. Race horses, carriage and coach horses, that live principally on grain, or food of little bulk, rarely suffer from this disease, though their exercise is frequently of the severest kind. Farmers' horses suffer the most, as the food they receive is generally more bulky, and the time allowed for receiving and digesting it, is less than with the kinds named. The bulky food presses severely on the lungs, and while filled in this way to repletion, the horse is taken from the stable and put to the plow or wagon, where the result is such as might reasonably be expected, serious injury to the horse at the time, and fatal results hereafter. No person, we think, has ever seen a broken winded horse cured. Palliatives are all that can be expected to produce beneficial effect. The nature of the disease points out these. Food containing much nutriment in little compass; water sparingly given through the day, or while the horse is at work; the bowels kept loose; and above all, the horse must never be put to hard work while the stomach is full. Broken winded horses should not be turned out to grass; the food is too bulky; the stable and grain is their proper place and treatment.

BUCKWHEAT. A triangular grain produced by a plant of the *Persicaria* tribe, of which the *Polygonum fagopyrum* is the common cultivated kind. Its leaves are arrow shaped; its flowers purplish white. It originated in the north of Asia, and has been known in England about 200 years. Buckwheat is a valuable grain, and is grown extensively in Pennsylvania, and all the states farther north, as food for cattle, swine, and poultry. Buckwheat cakes, well made, are an excellent substitute for bread; and in some years have furnished a large part of the food of the laboring part of the community. When well prepared, such cakes have established a reputation, which, during the winter months particularly, renders them a welcome visitant at the tables of the most fastidious. Some farmers sow buckwheat for the purpose of plowing it in, as a green dressing for crops. Its quick and luxuriant growth renders it very suitable for this purpose. Buckwheat straw, if properly secured and kept from exposure, is one of the most valuable kinds of fodder for animals in general, but it must be cut before it is bitten by frost, to retain its good qualities. There is no plant which furnishes more abundant supplies of honey for bees, or for a longer period than buckwheat, and in some places it is sown for this purpose alone. It gives a distinct flavor to honey, when it is new, but it is by no means unpleasant, and it loses it by age. Within a few years, another kind of buckwheat, (*Polygonum tartaricum,*) or Indian wheat, as it is called by some, has received a good deal of attention in some parts of our country, and been highly recommended as a great bearer and excellent grain. Whether it will prove superior to the common variety remains to be seen. All kinds of buckwheat are valuable, as producing good crops on soils comparatively exhausted, and requiring but little seed to an acre. Indeed the great fault in sowing this seed is, that in spite of precaution, it is used too liberally. If sowed too early, there is danger from spring frosts; if too late, the fall frosts will be likely to overtake the plant before the seeds are ripened.

BUD. All plants, vegetable stems, and every branch springing from these, are developed from buds or germs, and these at first are so small, that no optical means we can command are able to determine their origin. When developed, the bud is found to contain within itself the parts that are to arise from it, in miniature, and folded up as it were, in the smallest possible compass. So true is this, that the future plant or tree may be considered only as an enlargement of parts already existing in the germ. From the fact, that each bud is a perfect plant, the practice of *budding*, or the insertion of buds in inoculation to propagate trees or plants, or substitute valuable varieties for those of inferior quality, has arisen. A bud so inserted, attaches itself to the tree, and with proper care, forms a new head to the original stock, the fruit or foliage of which is like the tree from which the bud is derived.

BULB. There are a number of plants, the roots of which are perennial, while the tops are annual; and as these seem destined to contain the nourishment of a new plant, they are enlarged, and either flatted or rounded as the variety or species may happen to be. Many of the finest flowering plants are bulbous, and in some places, particularly in Holland, the culture of such bulbs (tulips and others) for sale, is an important and lucrative branch of trade. Among farmers, the only two bulbous roots that attract much attention, are those of the onion and turnep. Bulbous roots, like the tuberous ones, are preserved with ease, requiring only a temperature of little above freezing, to prevent germination, and atmospheric dryness to prevent mouldiness or rotting.

BURNING. In agriculture, burning consists in taking the turf from land with as much of the earth as will adhere to it, drying it thoroughly, and then either with or without the aid of other fuel, burning it in large pits prepared for this use. The greatest benefits of burning are experienced on clay soils, where a mixture of other earths are required to counteract the natural adhesion of the clay. In burning, all the clay particles are converted to a kind of brick earth; and this, on being spread over the earth, together with the ashes and salts produced in the process, furnishes an excellent dressing, as well as a permanent amelioration in the soil. The brick dust acts as the addition of siliceous matter in rendering the earth more friable, and from its color, it retains the solar heat better than when in its former state. Paring and burning is also destructive of all foul seeds, and of all insects, unless their habitation lies below the turf. In this case, the ashes not unfrequently destroy or drive them away. The ashes so made are sometimes mixed with lime and vegetable or animal manures, in the manner of composts, and then applied to the soil with great effect.

BUTTER. Milk is composed of an oily, caseous and watery substance from which butter, cheese and whey are respectively produced. There is scarcely an article of domestic production in more extensive use, or one which varies more in quality than butter. To produce the best, it is necessary that the food of the cow should be sweet and good; that the milk should be kept free while the cream is rising from all offensive odors or impure air; that the cream should be taken off before the milk sours and renders separation impracticable; that the churning should not be delayed, lest the cream become bitter and rancid; that the churning should be performed with the cream at a proper temperature, or not far from 63 degrees; and that the separation of the buttermilk should be complete. After the churning is commenced, and particularly after the formation of the butter is begun, there should be no interruption until the work is finished. The great cause of butter becoming rancid, or *frowy*, is the imperfect separation of the buttermilk, and neglect in salting. None but the best and purest salt should be used for butter; and when these several points are attended to, there is little danger that the article will not be of good quality. Butter made in this way, freed from milk, salted with pure salt, and every part of the process conducted with the neatness which is indispensable in the dairy, can be kept for any desirable time, if packed in close vessels that exclude the air, and kept at a low temperature. The quantity of butter a given quantity of milk will produce, varies much in different animals, the milk of some being much richer than that of others. Tall slender glasses are useful in determining the quality of milk, as they show the relative thickness of the cream. Cows will give of butter from 150 to 300 pounds in a year, and none but the best animals should be selected for a butter dairy.

CABBAGE. (*Brassica oleracea.*) This well known plant is extensively cultivated in most gardens for culinary purposes; and in some places is grown largely in the field for feeding to animals. The cabbage formed a prominent article in the plan of Cobbett, by which one-fourth acre of land was to support a cow the year round. In climates that are suitable, the plant called the tree cabbage will furnish a great amount of food, and is profitably cultivated for animals. The common cabbage requires a rich soil, and will thrive the best in loam. It should be planted from four to six feet apart, according to the kind; some varieties being much larger than others. Cabbages should be planted as early as the ground can be fitted for their reception, and those designed for summer use, should be started in hot-beds, where this convenience is at hand. In the preservation of cabbages for use in winter, they are generally put in cellars, but they are very apt to mould and rot; and if the temperature is not very low, the heads will crack open, and the new shoots put forth before the season for transplanting arrives, thus destroying the head. Burying in the ground where the earth is dry, the covering of earth comparatively slight, is probably one of the best methods of preserving them fresh and in good order. The cabbage will bear a considerable degree of cold without injury, if situated so that the frost is taken out gradually by the earth. Large quantities are annually made into sour krout, an article which forms an important part of all ship stores destined for long voyages, and to the use of which, much of the exemption of sailors from that terrible disease the scurvy, is now to be attributed. There are many varieties of this plant; but the general properties are the same.

CALCIUM. This is the name of a metal discovered by Sir H. Davy, and constitutes the basis of lime. It is of a silver color, burns with great brilliance when brought in contact with atmospheric air, and absorbs oxygen so rapidly, that it instantly assumes the form of lime. The term *calcareous*, as applied to earths containing lime, is derived from this word; and in the form of carbonate of lime, or common limestone, there is perhaps no substance more universally diffused, or which acts a more important part in the economy of vegetation.

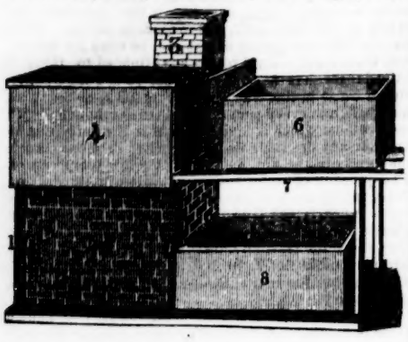
CALORIC. This is the name given to that agent which produces heat and combustion, and exercises a great influence on the principal phenomena of nature. It is imponderable, and appears to exist in two states, *free* or uncombined, and *latent* or combined. Perhaps there is nothing that has a more decided influence in nature than caloric. Under God, it seems to be the supporter of all vegetable and animal life; and it appears certain, that a state of absolute cold would be a state of absolute death. The opinions of learned men at the present time seem tending to the belief, that caloric, electricity, galvanism, magnetism, and light, are effects of one and the same agent, depending for the different appearances and effects on its accumulation, rest or motion. On agriculture, this agent acts with great effect, since the soil is cold or hot according as it retains or parts with the caloric it receives from the sun. Soils that are black or white receive the least benefit from heat; the black mould, while it acquires heat with great rapidity, giving it off still more freely; and the white soils, owing their color principally to clay that retains moisture very strongly, scarcely feel its influence, the heat being carried off in evaporating the water. The experiments of Rumford and Leslie show, that a vessel covered with lamp black radiated heat at the rate of 100 degrees, while one made of bright tin plate, gave out only 12 degrees. Soils in which mould or black earth is properly combined with silex and alumine, will retain heat the longest, as the black gives it out to the others instead of radiating it into space. A melon laid on a bed of powdered charcoal will ripen, when one on common earth will remain green and immature.

A Good Sheep.

A letter from a correspondent at Skaneateles, has the following:—"Jacob Vanatten, of Skaneateles, has a buck, from which he last year clipped 9 lbs. 12 oz. of wool, of excellent quality. This fleece made 8 lbs. 12 oz. rolls, from which was spun, 17¼ runs, or the filling of 19 yards of fulled cloth, equal to 9¼ yards of such cloth from one sheep."

Communications.

Robinson's Improved Root Steamer.—[Fig. 59.]



1. Plan of mouth of furnace.
2. Furnace 4 feet long by 1¼ wide outside.
3. Chimney led off from one side of furnace.
4. Steam chamber, 4 feet long, 2 high, and 2 wide, made tight, of two inch plank, well clamped, and the bottom of sheet iron, nailed air tight.
5. Door, 4 inches shorter than the height of chamber, that space being for water.
6. Car, made just large enough to fill the chamber above the water; the wheels should be of iron, and run in a casing inside of car; the bottom of car to be made of slat or wire work, and hinged to open down; an iron handle is on an outer end of car to hook on to, to draw it from the chamber.
7. The rails laid in the steam chamber and extended out 12 or 15 feet.
8. A trough or vat 4 feet long, 2½ wide standing directly under the rails, and into which the whole contents of the car are emptied, by a single blow knocking the bottom open as soon as drawn from the steam chamber.

9 & 10. (not shown). Same kind of troughs.

Messrs. Editors of Cultivator—Enclosed I send you a very rough draft, of what I hope may prove a very useful invention. My drawing is necessarily rough, for the school in which I got the most of my education, had but one scholar and one teacher, and him not capable of giving many useful lessons in self-teaching, and this draft is my first lesson in that most useful and most neglected branch of education, which ought to be taught in every school.

The benefits of my "Rail-Road Steamer" are, that all of the very hard and unpleasant labor of handling the beet, potatoes or other roots, is saved; and much of the labor of filling the steam tub or box in common use is also saved. The rails should extend from the steam chamber to the potatoe bin, and all the potatoes or other roots to be cooked before freezing weather, could be kept on a floor raised just high enough for the car to run under, and then be filled through a trap door. Having three or more receiving troughs under the rails, into which the contents of the car would be emptied, would enable us to always have one of them cool.

Whenever it could be so arranged, these cooling troughs should be right along side of the feeding troughs, only having a passage between. When this is not practicable, put wheels to them, so that they could be run upon the floor, on rails extending out of the steam house to the hog pen. A pump should also stand near the steamer, whenever it can be so arranged. The steam chamber must also be furnished with two guage cocks, one close to the bottom, and one just at the top of the water line.

The plan of this steam chamber, is recommended for the cheapness of construction, but steam may be generated in any other way, and conveyed to a similarly constructed chamber. This chamber may be extended to any required size, even so that 100 bushels may be cooked at once. It will require no extraordinary mechanical skill to construct it. The joints should all be put together with white lead. The bottom should be made of sheet iron, of about 16 to 20 lbs. to the sheet, nailed on with broad headed wrought 4 inch nails, so that the heads will nearly touch each other. The bottom part of the clamp, must be an iron rod of course. If the sides of the chamber project 3 inches over the outside of the brick work of the furnace, the wood work will never burn while there is water in the chamber. While in daily use, water must be kept constantly in the chamber, and when out of use, it must be carefully cleaned, and a pound of tallow would do no harm, to keep the iron from rusting. The door should be made to shut into a rabbet, which must be *listed* with woollen list or cloth, which will make it steam tight. The fastening of the door should be the weakest part. I would recommend a weight and pully, so that in case of excess of steam, it would act as a "safety-valve." The quantity of weight, experience would soon give. The bottom of the car may be made of wooden slats, thus, ⫶⫶⫶⫶⫶ though I would recommend wove wire, on a frame like the sieves of a winnowing mill. The wheels of the car must run in a casing on the inside of the car, so as not to take up any space outside, and require only a short pin for axles. They should not project more than an inch or two below the bottom, and may be of wood or on. The rails may be of narrow inch and a half plank, with strips nailed on the sides for flanges, to keep the wheels in the track.

Now, gentlemen, I hope by this description and the drawing, you will be able to understand my meaning, and that you will conceive the plan to be of sufficient importance to induce you to procure an engraving, showing the machine and the appurtenances much more extensively than I have done, and publish the same in the Cultivator, for the universal benefit of mankind.

I also enclose ten dollars, with which I wish you (if you think the invention worthy of it,) to procure a small working model of the machine, to be kept in your office, or such other public place as you may designate, for the benefit of those who wish to build. As I do not intend to take any patent, and as I am not abundantly able to bear the expense, I recommend to all who are able, who make use of the improvement, and find it to answer a valuable purpose, to contribute sufficient, and place it in your hands, to reimburse my expense for the above model, and also to make two elegant working models, one of them to be deposited in the Patent Office, and the other to be exhibited at the annual fairs of the American Institute. If I may be permitted, without incurring the charge of egotism, I would suggest that the machine may be called "Robinson's Improved Root Steamer." "With affectionate regard,"

SOLON ROBINSON.

Lake C. H. Ind. March 14, 1840.

FENCING.

Messrs. Gaylord & Tucker—As the spring of the year is the time when farmers usually repair their fences, I have been led to reflect much upon the subject of fencing, and the various utensils used for the purpose. The state of New-York and our whole country, with, perhaps, few exceptions, is greatly deficient in all kinds of materials for fence. Stone, in sufficient quanties on our best lands, are not found; posts and boards are scarce, and at too high prices, and the timber of our forest have almost wholly disappeared. Hedge, wherever tried, has, almost without exception, proved a failure. Surely, then, it becomes an inquiry of much importance, What are we to do for fence? My own opinion is, that our country must rely principally upon rails, as being the most easily raised, and the most durable. The discussions which have been going on for years, with regard to the best time for cutting timber, have brought to light many facts concerning the duration of rails. Unquestionably there are now a vast many rails in western New-York, which have been in use thirty or forty years, and these, too, not of the most durable timber. Even basswood rails may be found, which are now tolerably sound, that have been laying in fence forty years. If the rails of the least durable timber, by being cut at the proper season of the year, will endure twenty and thirty years, surely then it is not unreasonable to expect that rails of cedar, locust, and chestnut may last even a hundred years.

Many experiments and suggestions have been published in agricultural papers, respecting the raising locust and chestnut from seeds, and black ash from sprouts, for fence, and the quantity of land requisite to supply an ordinary sized farm, and the time necessary for their growth. I believe most writers consider twenty-five years sufficient. I will set down the quantity of land at five acres, to supply a farm of one hundred. Surely, then, a little forethought and providence for our successors may secure our country from that most desolate appearance of a land without hedge or fence. Being a native of western New-York, and having my earliest associations with log houses and worm fences, I confess a preference for a rail fence over all others for farming purposes.

My object is not, now, to urge farmers to set apart land for raising fencing timber, but to make some suggestions with regard to rail fence, manner of building, &c.

There are two prominent faults with the rails split by the first settlers. They are too small, and many of them crooked. I have found an advantage in having rails ten and twelve feet in length, as many trees will cut to better advantage ten feet than twelve. Rails, to be durable, should be sufficiently large to require but seven for the highest fence. The manner of laying fence is most important to its duration, appearance and usefulness. The best rule I have ever known, is as follows—Let the line be sufficiently designated by ranging stakes; and flat stones, of four or five inches in thickness, procured for the corners to rest upon. To give a uniform crook to the fence, provide a pole seven or eight feet long, well sharpened at the butt end and pointed with iron. At about eighteen inches from the pointed end, fasten a rod at right angles with the pole, and extending three feet four or six inches for rails twelve feet long; but for ten feet rails three feet, or thirty-eight inches if much exposed to winds. Place this pole in a line with the ranging stakes, and the end of the rod will designate the place for the corner. Lay the bottom rail which should be large and straight, the butt end forward, and the other end crossing the preceding rail, at the end of the rod of the ranging pole, so that the corners on each side be in exact line. Let the five following rails be laid the smallest end forward, and notched, if necessary, to make them lie steadily. Rails are many times injured by notching. A very slight notch will usually be found sufficient. The top rail should always be laid like the bottom, the butt end forward, and when the fence is not staked, should be large and heavy. A new method of staking fence is becoming quite common, and I think it a great improvement. The stakes are placed perpendicular on each side of the corner, and united by a cap as it is called. This cap is made of plank six inches wide and sixteen inches long, having two three inch holes bored through it, eight inches apart.

The cap should be placed on the fourth rail, and the rails above it will bind between the stakes, so as to render the fence firm and immovable. I have seen fence staked in this way, taken entirely off the ground on which it stood, by high winds, and yet had not lost its upright position. As a general rule, I think that new rails should not be taken to repair old fences, but rather let the poorest part of the old fence be entirely removed, and its place supplied by a new one. There is much advantage in laying over old fences, raising up the corners and taking out the defective rails. Many an old fence which is now almost useless, by raising the corners out of the ground, and putting it in a perpendicular position, might do service for years.

The most prominent objection to worm fence is, that it takes up too much land. But this is more imaginary than real. One mile of fence, even when you own the land on both sides of it, only occupies one acre; and this acre is far from being lost, as the grass is usually the sweetest and most abundant in the corners of it. It is true, worm fences, as frequently seen throughout the country, present a slovenly appearance; rails poking out here and there two or three feet from the line; stakes leaning hither and yonder as if pitched from the clouds. Such is not the fence I advocate.

A fence whose rails are of equal length, whose corners are in exact line, whose height is uniform, well staked with cedar stakes and white oak caps—such a fence will add beauty to the landscape; at least will fill the eye of every well bred farmer. Yours, &c.

MYRON ADAMS.

Ontario Co. April 25, 1840.

Apple-Tree Worms.

Caterpillar or Larvæ—The worm-like state in which insects appear on quitting the egg.

The species which I shall here treat of, are the two brown varieties, inhabitants of this state, which frequently do great injury to the apple and other fruit trees, by stripping them of their foliage, and preventing the setting of the fruits.

The two kinds which are the most destructive to our apple-trees, nearly resemble each other, of a brownish color with two white stripes on the back, a short and thin coat of hair, beset with ramified spines. When full grown, they vary from two to two and a half inches in length, and about the size of a goose quill.

Both kinds are generated from the *ova* of a grey butterfly, of an oblong shape, cemented together in a band by a gluey substance around the twigs of the trees in the month of July. The eggs are about the size of the silk worm's, of an oblong form, arranged in a regular compact, which forms a band around the small limbs, from one-half to three-fourths of an inch in length. They remain in this state until April, from which insects about one-eighth of an inch in length, are generated, as the buds begin to burst, and new leaves are putting forth.

One of the above varieties, rather the smallest in size, forms, immediately after hatching, a web or net, to protect them nights, and from cold and wet. The other variety makes no permanent web or shelter, but congregate side by side in one compact. When they retire from the foliage, they, like the first variety, let themselves down by a fibre from one limb to another, or drop to the earth on being disturbed.

In order to remove the gregarious sort of caterpillars, which are enclosed in great numbers in nets or bags resembling strong cobwebs, on the branches of trees, take a long, light pole with a band of flannel on the small end, and after twisting it in the net, crush them on the ground: by this method, vast numbers or nearly all of them may be destroyed. If the swab be dipped in spirits of turpentine, it will destroy all that it may come in contact with. The caterpillar which forms no web, I have had more experience with than was pleasant or agreeable to me. In the spring of 1825, I devoted my whole time with three more hands in destroying these worms, from their first appearance until they wound up. In an orchard of about one hundred and twenty-five apple-trees, what we killed in the space of six weeks, it was estimated that, if they had all been full grown, would have filled more than two hundred bushel measures.

This variety had not been noticed with us more than two years previous, probably on account of their small numbers, and because these nearly resemble those that make nests or webs.

Their direction of travel, when full grown, was northwardly. Some of them would traverse over more than one mile of departure, no doubt, before they changed into the chrysalis.

These worms, before they were half grown, by jarring the tree, or by any sudden noise, would all commence wagging their heads, and, if repeated, would swing off by a small thread or fibre.

We commenced, when they first hatched, by destroying them on the twigs and young leaves, by pressing them with the hand, and as they advanced in size, they would congregate on the larger branches—we then crushed them with paddles.

When those in the adjacent woods had entirely stripped it of its foliage, they made a bold attack upon the orchard. We were obliged to lay a band of fresh tar

below the branches around the trunk of the trees, which did prevent their access to the limbs, and afforded an opportunity of killing thousands at one brush with the paddle.

Whole forests were stripped of its herbage this season; and, in many orchards not a green leaf could be found. The orchards and the wilderness only presented one vast scene of a scorching fire; and many of them did not resume their wonted vigor after. Cider advanced from one to four dollars per barrel—by the rise in fruit and cider, we were well paid for our enterprise, beside the preservation of a flourishing orchard from this destructive animal. The caterpillar, in the month of June, attains its full size, retires to some convenient spot, and securing itself properly to a leaf, or under the copings of walls or gates or palings, and about the eaves, doors and windows of houses, by a quantity of silken filaments, encloses itself in this wonderful garb, case, or cocoon of a conical figure. It there casts off its caterpillar skin, and commences chrysalis. In this state of rest and seeming insensibility, it remains four or five weeks, until the butterfly is ready for birth: it then quits the external covering wherein it lay imprisoned, and liberating itself from the skin of the chrysalis, remains till its wings, which are first short, weak and covered with moisture, are fully extended. This happens in about half an hour, when the animal suddenly quits the state of inactivity to which it had been so long confined, and becomes with pleasure an inhabitant of the air.

While in the period of chrysalis, cold and frequent rains do more to destroy and rid us of this voracious insect, than all other incidents, or human effort.

It has been frequently recommended to destroy them on the trees, by the application of strong soap suds; as soon as the soap water touches them they curl up and appear lifeless, but upon being dried in a warm sun, they crawl off as smart as ever.

This butterfly is bred from the chrysalis in July and August, and may be found in cloudy days and at twilight, depositing their eggs on the limbs of the trees. They live about eight or ten days, during which they eat little or nothing. One moth will produce from one to two hundred eggs. They seldom fly from one tree to another. SOLOMON W. JEWETT.

Weybridge, Vt. April 11, 1840.

Plans of Cheaper Houses Wanted.

Messrs. Editors—There is hardly any thing touched on in your paper, so interesting to the reader, as the plans of building houses—so important to convenience and comfort, and also to economy. The expense of building, here in Dutchess county, after almost any of the plans given in the Cultivator, would be from two to three thousand dollars, beside another thousand, for corresponding fixtures and furniture; enough to buy a small farm. And then we must have a shed behind it, to live in, for we here don't think of living in the front part of our houses, not even to go in at the front door. Why, sirs, what would you think of a family with a nice two story house, finished and furnished, who should leave their house empty, and live on the other side of the road?

Now you must know that a great majority of farmers are unable to build and furnish a palace; neither does good taste require it; for a small plain house, well arranged, *looks* as well as a large one; and it often happens, that where a large one is built, there are no funds to spare for corresponding fixtures; then, wo begone! is the appearance of the whole establishment.

I would that some of your ingenious correspondents would build us a smaller, cottage-like house, for one thousand dollars, and let us have about it a suitable lawn and trees, and I believe the sharpest critic will be pleased with it.

As for paint, although essential to the well-looking of a house, it is not absolutely economical. The siding of the house I live in has been on 59 years, which is yet good, without paint. To have kept this house well covered with good white paint, which must be renewed at least three times in sixty years, would cost twice as much as to renew the siding. Let paint, therefore, be set down to taste, not to profit. N. REED.

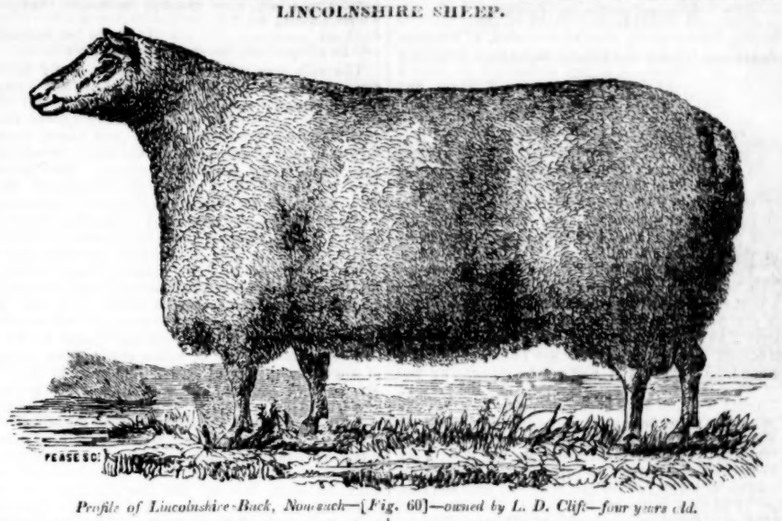
Amenia, March, 1840.

CURING HAMS.

Editors of the Cultivator—In the January number of the Cultivator, I observed a recipe for curing hams, much the same as I used for many years, until I found one more agreeable to my taste, which if you think worth the room in the Cultivator, may be communicated to your readers. For a barrel of hams, say 175 pounds, take 12 pounds salt, 8 pounds clean brown sugar, ½ pound salt petre, pulverize and mix thoroughly: rub the hams well with the composition, pack them in a tight barrel, head it, and lay it on the bilge; roll it over every day or two; it will soon make a pickle, which in four or five weeks will be nearly all absorbed by the hams; when they are ready to smoke, hang them butt end up in a smoke-house, rather open above, tight enough below to prevent the effect of wind upon the fire. In about four weeks they will be sufficiently smoked, when they may be put in cloth or paper bags and white washed, or put in a dry, cool dark place out of the reach of flies. Cobs or hickory wood are preferable to any thing I ever used for smoke. I make use of no water during the process of curing. Hams cured in this way improve for the first year. G. S.

Erie Pa. Feb. 15, 1840

LINCOLNSHIRE SHEEP.



Profile of Lincolnshire Buck, Nonsuch—[Fig. 60]—owned by L. D. Clift—four years old.

Messrs. Gaylord & Tucker—As I observe that you have given quite a new interest to the Cultivator, by the representation of several fine cattle and hogs, I have thought that it would not be amiss to send you a profile of one of my Lincolnshire Bucks. It was taken by W. L. Brown, Esq., of Philadelphia, who, being on a visit to this section, kindly volunteered to lend me the aid of his pencil.

The Buck, of which the above is a just representation, is now four years old, and his measurement, taken in the presence of Mr. Brown, is as follows:

From nose to root of tail,	4	feet	7½	inches.
Height of fore shoulders,	2	"	8	"
Height on the rump,	2	"	9	"
Breadth across the shoulders,	1	"	6	"
Breadth across belly,	1	"	7	"
Breadth across loins,	1	"	4	"
Girth round the brisket and shoulders,	3	"	10	"
Weight of Clean Fleece,	10	lbs		

This highly improved Lincolnshire Buck, together with sixteen ewes of the same breed, was obtained by me about three years since, and all were of that celebrated importation made by Messrs. *George H. Gossip & Brother*, in the year 1836, direct from Lincolnshire, England. These gentlemen, by the way, were English born, and had been reared farmers in their native country.

Previously, in the year 1835, I made an importation from England myself of two pair of sheep, one of which was of the Lincolnshire blood, and the other the Cotswold, and both were from the estate of the Earl of Lansdown, Yorkshire.

It is now something more than twenty years since I first turned my attention to sheep, and during that time I have bred the various breeds of improved mutton sheep, which have from time to time been introduced into this state; and for the last seven or eight years it has been the chief branch in my agricultural pursuits to introduce and raise sheep of this order. In my earlier attentions to sheep I became aware of the sad deficiency of constitution, (which has often been urged,) in most of the larger breeds of English sheep common among us, such as the Bakewell, Leicester, &c.; and that I might remedy this evil, I was induced to incur much expense, in order to obtain a race of sheep, hardy, well adapted to our climate, and altogether different from any familiar to our best breeders. I had always observed that a sheep well woolled, wearing a thick heavy fleece, with a well formed carcass, always thrived the best, and was better fitted to undergo the rigors of our climate. And now in offering to the public the Lincoln sheep, I can say that they possess not only this qualification in an eminent degree, but that they are in every way well adapted to this country, more so than any breed among us. And in this assertion I think I shall be borne out by all who have been at any pains to raise them. My experience in the breeding of the Lincolnshires enables me to speak with assurance as to their true merits, and what to me has been the result of experiment in their cultivation, I trust will not be laid to the charge of egotism. The following are some of their most prominent characteristics.

They are not over large, but carry great weight in their compass of carcass—have early inclinations to maturity and to lay on fat; the wethers being fit for the stall, if you choose, at two, and at the farthest at three years old—I have turned them to the butcher at both ages. In their expression of countenance and in their action they are lively and quick, full of cheerfulness and agility. Their head and ear small, set with the utmost grace and symmetry upon a round, compact, well turned carcass. Their skin the most delicate and soft to the touch, upon which grows a thick, long, and heavy fleece of wool, completely enveloping the whole body from the ears backward. In habits they are domesticated and easy of restraint; they are gross feeders, not so delicate in their choice of food as other sheep, and thriving upon coarse and scanty pasturage. It is said by English writers, of this breed of sheep that they thrive best on low marshy grounds. Of this fact I have no positive proof, (my farm being mostly upland) other than that their fleece and constitution would seem to warrant the assertion. But this I do know, and that too from trial, that I have never seen any breed of sheep which combines so many essential qualities for mutton sheep, and at the same time are so well adapted to the various climates in our wide-spread country. I have had occasion to send specimens of my flock to various quarters of the United States, even to their southernmost limit, and am happy to say, that I have heard good reports from all.

The Lincolns are fitted in constitution to either cold or heat, and their heavy fleece is a great safeguard in either extreme. To the latter, the lumb, when yeaned on a cold chilly day, often owes its salvation, when care is not at hand. One thing remarkable with the ewes of this blood is, that they always yean with great ease; and in several instances I have noticed that when my Lincoln bucks have been crossed upon small ewes of any blood whatever, these ewes, in consequence of the very small head and neck of the Lincolnshires, have had no difficulty in bringing forth, as is common, and to the great danger too, of the life of such ewes, when crossed upon the larger and coarser breeds of English sheep. And it is my candid opinion that no breed of sheep has ever been introduced into this country which offers so good a cross upon any and all of the various breeds common among us as the Lincolns. Their cross upon the Bakewells, Leicesters, and Cotswold is good, improving each of the latter in constitution and beauty of form, and my crossings have been upon ewes bred with much care.

As an evidence of the prolific nature of the Lincolns, and the hardiness of their offspring, I will state that I have raised in 1839, from 64 ewes (chiefly ewes 2 and 3 years old) 92 lambs, and have not lost a lamb by reason of any exposure whatever. When my ewes are older, more than half generally have twins.

My flock numbers in all about 250 head, and most of them have descended from their great progenitor, who stands represented at the head of this article. Hitherto I have taken no very great pains to bring the Lincolns into extensive notice, preferring to stock well my own farm, and to test fully their qualities and habits; and now that I have done so, I boldly offer them to my brother farmers as a mosts uperior article, not surpassed, in fact not equaled, by any sheep this side of the Atlantic. I keep on hand continually a considerable number for sale, the prices varying according to the grade of blood and quality.

The qualifications of these sheep for mutton may be judged of by the following statement. In February, 1839, I sold a lot of half bloods, two shear wethers, in the New-York market, at 25 cts. per pound—the average weight per carcass was 125 lbs. or 31¼ lbs. per quarter. Thus it will be seen that apart from every consideration of selling to agricultural gentlemen, it is an object to raise these sheep for the butcher alone; and this I am resolved to do if my brother farmers will not have them. The Lincolns are also great producers of wool, cutting in the clean from 6 to 10 lbs. per head. This commands a fair price at all times, varying from three to four shillings the pound.

As for myself, I always go in for the best stock, and I pledge myself that when any one will produce to me a better breed of sheep than the Lincolns, I will be his patron. I cordially invite all who take an interest in fine stock, to pay me a visit, and view my flock for themselves. My place can be found at Carmel, Putnam county, state of New-York.

It appears to me, gentlemen, that quite too little attention is given by our farmers, to the rearing and proper management of sheep, and also in adopting or choosing the proper breeds suited to the different sections and climate of our country. I hold it as a *sound maxim*, that all sections of our country contiguous to markets

for mutton, and in all sections where sheep can be raised as *stores*, and driven to the vicinity of those markets for fatting, *mutton sheep, properly so called, of whatever breed*, are, and must be always, by far the most profitable to breed; for instance, it is just as feasible to raise a sheep in the counties of Westchester, Putnam, and Dutchess, that would at maturity, bring in the New-York market, from $10 to $20, as to raise a Saxon or Merino, that would bring but from $3 to $6, and it is just as practicable for the farmers living in the western counties of this state, and on whom we are in the former section dependent for *stores*, to give us a sheep worth from 5 to 10 dollars, as one that is not worth but from one dollar to five. All the difference of these prices are and have been realized, by the farmers in these different sections, for a number of years past. For proof of this I will state that as low as the markets have been the present winter, I have obtained for a part of my lot of two shear wethers, from 15 to 17 cents per pound for the carcass, and several of my choicest I have yet on hand, having refused *them* at those prices. Last year you will see I obtained 25 cents per pound. I trust that it will not be thought by you out of place to state that both last year and the present, my Lincoln wethers have been considered by the butchers, who saw them both alive and dead, as superior to any other breed of sheep in their fine qualities of mutton, that has yet been introduced into the New-York market; for proof of this, the price obtained clearly demonstrates, it being as they say, both last year and this, higher by some 5 or 6 cents per pound, than they had paid for any thing of the kind. If, Messrs. Editors, such facts as these will not be duly appreciated by all those wishing to improve their breeds of sheep, I am yet content to breed the Lincolns, for the butcher only.

L. D. CLIFT.

Somers P. O., N. Y., March 4, 1840.

Durham Cattle—Crossing.

Messrs. Editors—In the March number of the Cultivator, in a synopsis of the proceedings of the Highland Agricultural Society, you publish the remarks of Mr. Heriot in relation to that family of the Improved Short Horn breed of cattle, known as the "*Alloy*"—so incorrect in themselves, and so misleading in their tendency, that they should not be suffered to go forth without correction. The connection which Mr. Heriot appears in to the Highland Society, and the fact that he speaks *as* from *personal* knowledge and observation, attach to his assertions a degree of credit, which they do not deserve. The history of the precise manner in which the celebrated cross between the Short Horns and polled Galloways was effected, from which sprung the *Alloy*, though of little importance compared with the great point—*the consequences of that cross*—should nevertheless be truly stated, for the information of succeeding breeders, and even this, Mr. H. has not done. The following paragraph, which I quote from the London Farmer's Magazine, (the substance of which was given in the Cultivator,) presents his assertions in full, on both points:

"In the number just published of the English Agricultural Society, a distinguished nobleman, in his article on the breeding of cattle and sheep, has been led into an error; for that noble lord says—"The most successful cross between two different breeds of cattle, of which I am aware, was the one between a Durham bull and a Galloway Scotch cow, made by Mr. Charles Colling. The produce of this cross sold for enormous prices at his sale, and at the present day, a majority of the best Short Horned cattle are descending from it." This is certainly a mistake. The cross was between a Galloway bull and Short Horned cows. From this cross were produced several splendid females: but eventually, he gained neither fame nor profit by the experiment; and, although by this time the stain is probably washed out, breeders who possess the best herds, have always carefully guarded against the blood thrown in by this cross, which has ever since been technically called "the Alloy."

The "noble lord" so categorically set right by Mr. Heriot, was Earl Spencer,* the President of the English Agricultural Society, of the Smithfield Club, &c. and probably the most extensive breeder of pure Short Horns in the world! It does not appear from the Herd Book, that Mr. Heriot has been the breeder or owner of *one!* The following is the real history of the cross, by the Rev. Henry Berry, and as it is adopted by Mr. Youatt in his history of British cattle. It should be remarked, too, that it is fully confirmed by the Herd Book, (an authority which Mr. Heriot acknowledges in a preceding part of the same paragraph, a portion of which is quoted!) as may be seen by referring to the pedigree of any of the animals mentioned by Mr. Berry.

"Mr. Colling's Short Horned bull "Bolingbroke," was put to a beautiful red polled Galloway cow, and the produce being a bull calf, was in due time put to Johanna, a pure Short Horn—she also producing a bull calf. This grandson of Bolingbroke was the sire of the cow, *Lady*, by another pure Short Horn dam, and from Lady has sprung the highly valuable family of improved Short Horns, termed in reproach the *Alloy*. How far the alloy was derogatory, let facts testify. It will probably be admitted that the prejudice against this cross, was at the highest at the time of Mr. Charles Colling's sale. * * * * *Lady*, before mentioned, at fourteen years old, sold for two hundred and six guineas. *Countess*, her daughter, nine years old, for four hundred guineas. *Laura*, another daughter, four years old, for two hundred and ten guineas. *Major* and *George*, two of her sons, the former three years old, the latter a calf, for two hundred guineas, and one hundred and thirty; beside a number of others, more remotely descended from *Lady*, which all sold for high prices—in fact, in a sale of forty-eight lots, realizing £7,115 17s. Lady and her descendants sold for a larger sum than any other family obtained."

The sale here referred to affords a pretty decisive commentary on the statement, that Colling "gained neither fame nor profit by the experiment!" Mr. Heriot's closing assertion in the paragraph quoted above, that "breeders who possess the best herds, have always carefully guarded against the blood thrown in by this cross," is as inexcusably untrue. Earl Spencer, Rev. H. Berry, Mr. Charge, Mr. Champion, Major Bower, Mr. Whittaker, and a multitude of others among the most distinguished breeders of England, have bred the *Alloy*, and many of them have given it a decided preference. This was particularly the case with Mr. Whittaker, who, until his retirement, was perhaps the most fashionable breeder of England, and the most successful *seller* of Short Horned stock. His bull "Frederic," considered by him, I believe, the best animal of the kind in England, and "Charles" (sired by the latter) the names of one of which occur in the pedigree of almost every animal bred by him, were of the *alloy*. Mr. Berry's Actonia, whose portrait graces the work on cattle in the 'Farmers' Series,' as splendid a model of a Short Horn cow as any known, was of the *Alloy*. The American breeders almost to a man, have bred more or less deeply into this blood. The names of Williams, Munson, Rodman, Powell, Rotch, Orne, Henry Watson, Clay, Gibbons, Bement, the Messrs. Allen, the Ohio Company, &c. occur to me. Col. Powell's imported bulls, Gloucester, Bolivar, Bertram,* &c. were *alloy*-ed. Wye Comet, (owned by Henry Watson,) so celebrated in the eastern and northern states, possessed this blood. The present President of our State Agricultural Society,† acknowledgedly the most eminent breeder in the state, though commencing with animals clear of the *alloy*, has since introduced it into his herd, and his stock bulls for several years have all been of this strain. I might go on with the enumeration, but perhaps enough has been said to test conclusively the correctness of Mr. Heriot's assertion.

The consequences of Mr. Colling's successful experiment, have established decisively, the correctness of the principle of crossing, where circumstances require it. He resorted to it to obviate the deterioration produced by in-and-in breeding, which was slowly but surely leading to a hereditary debility of constitution. He not only renovated the blood of the Short Horns by the new infusion, *without injury to them otherwise*, but with masterly skill he improved a breed already near perfection, by engrafting on it the peculiar excellencies of another breed, in the main far inferior! This splendid solution of a much mooted and very interesting question, is too important in its general application, to be lost sight of or discredited under the assaults of any of that antiquated class of sticklers for the *ancien regime* of Short Horn blood, to which Mr. Heriot seems to belong. Mr. George Coates (compiler of the Herd-Book) was a memorable example of the same class. Once the possessor of one of the most valuable herds of Short Horns in England, he disdained to cross with the *alloy*, and Charles Colling soon distanced him in the competition for popular favor. Mr. Coates' herd sunk into obscurity and disrepute.‡

I do not lesign to be understood as advocating any *new* cross, having for its object the improvement of the full blooded Short Horns of the present day. As a variety they do not need it. That system of in-and-in breeding, which once made it necessary, has, as a general thing, long since been abandoned. It seems astonishing that intelligent breeders should ever have been willing to permit the incestuous connexion between the sire and his own progeny, his progeny's progeny, and so on to the third and fourth generation, yet such was the fact! The sire and grandsire of the celebrated Comet, sold by Colling for $5,000, was the same animal, Favorite. The Herd-Book abounds in instances where this direct in-and-in breeding has extended much farther. Indeed it was difficult, when the entire variety consisted of but few animals, to avoid entirely such a course, without merging to some extent their newly attained characteristics. When those characteristics became sufficiently stamped on the improved breed, to render their hereditary transmission certain, Colling had recourse to the Galloway cross. Had Bakewell resorted to a similar step, it is probable that the once famous New Leicesters would not have passed away, as they have done, like a dream. The number of Short Horns is *now* so extended, that it is practicable to breed from affinities too remote to produce any evil consequences, and, assuming that they are already the *best* breed, it is, as I have already remarked, unnecessary to cross them.

But, if a breed "near perfection," have been improved in certain particulars by admixture with an "inferior breed," the same experiment establishes conclusively, that the inferior breed received the greatest advantage from the cross. In other words, Lady, and her descendants were more improved from the Galloway cow, from which they sprung, than from their Durham ancestors; but with this difference—the Short Horn took but one cross of the Galloway, and then bred back to the pure blood: the Galloway blood, on the other hand, was merged and nearly extinguished by repeated admixture with the Short Horn. This is by no means a solitary example of the improvements effected by judicious crossing; and as it is a subject of much interest to our stock raisers, I will cite a few examples. The Ayrshires, so celebrated for the dairy, are, as has been remarked on a former occasion, the produce of a cross between the miserable and stinted original breed of Cunningham, and some of the earlier Short Horns. The admixture between the Durham and Holderness, or, in other words, between the *improved* and *unimproved* Short Horns, was signally successful; the produce being the favorite cow of all the English metropolitan dairies. The cross between the Short Horn and North Devon has increased the size of the latter, and, very decidedly improved their qualities as milkers. An intelligent writer in the work on Cattle, in the Farmer's Series, says—

"I have seen many excellent beasts bred from *Improved* Short Horned bulls and Long Horn (Leicester) cows: indeed, I never knew one of these bulls put to any cow, where the produce was not superior to the dam; but the cross which I advocate, and with which I am best acquainted, is that with the Devon cow. I have uniformly remarked, that each succeeding cross was attended with a proportionate improvement in size, quality of flesh, and aptitude to fatten. In every instance, they have shown themselves superior milkers. * * * A friend of mine had about a dozen North Devon cows, small in size, but nice in quality, and from these he commenced, about twenty years since, breeding with Short Horn bulls. He has since invariably used those bulls. With every succeeding cross the stock have rapidly improved in every essential, and the only trace of the Devons I could perceive, was a peculiar richness in their color."

It is well known that Mr. Berry was very partial to this cross. The various sub-varieties of Long Horns existing in the midland counties of England, and in Ireland, have been interbred with the Durham, with manifest advantage to the milking and grazing qualities. And, lastly, that heterogeneous melange, known as the "native breed" in the United States, have been equally ameliorated by a Short Horn cross—rendered more valuable for the dairy and the shambles, improved in the property of early maturity, and in docility of temper. I do not recollect to have seen this last fact publicly noticed, yet experience has amply convinced me of its correctness.* Mr. Jaques' "cream-pot breed," as he chooses to designate them, are but one among a thousand instances of successful interbreeding between the Short Horn and our "native" cows. To sum it all up, substantially, in the language of Mr. Bolton, quoted above, "the produce of any cow (of another breed) put to a Short Horn bull, will be superior to its dam."

"Take *but one cross*," it is often said, and this is correct in one point of view. It must be understood to mean, however, "take but one cross" of native or other inferior blood, and then breed steadily *towards the Durham*. The produce of the first cross will possess one-half of the Short Horn blood; the second, three-fourths; the third, seven-eighths; the fourth, fifteen-sixteenths, and so on. The contrary course, that is, the taking of but one cross of the Durham, and then *breeding back to the inferior variety*, has always resulted in ill success and disappointment. Did limits permit, I might cite many instances both on record, and which have come under my personal observation. I will name but one. I have alluded, in a former paper, to some admirable cows in Cortland county, the produce of a son of Wye Comet and common cows. The descendants of these cows, bred back toward the native stock, after the first generation, are in no way distinguishable from common cattle.

I have formerly alluded to the individual characteristics of the Short Horn bull, and native cow, supposed

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* Better known perhaps to breeders under his former title of Lord Althorp.

* All of the three named, were sired by Mr. Whittaker's Frederick.

† Francis Rotch, Esq. of Louisville, Otsego Co.

‡ Note by the Editors—The error of Mr. Heriot is ably exposed by our correspondent; but, as the subject is one of considerable importance to the cattle breeder, and has been much misunderstood in this country, as well as, it seems, in England, we have introduced here a statement by H. Cotterell, Esq. one of the best authorities on the matter. It is from the Farmer's Magazine for Dec. and corroborates fully the position of our correspondent:

"In the next paragraph [of Mr. Heriot's statement,] Mr. C. Colling perceiving that by continuing this close breeding, he was rendering the stock delicate, took the remarkable step of putting a *Galloway bull* to some of his best cows; and that a noble lord [Earl Spencer] was in error in saying, "The most successful cross between two breeds of cattle, of which he was aware, was the one between a *Durham bull* and a Galloway Scotch cow, made by Mr. Colling."

"Here, again, Mr. Heriot is in error. Mr. C. Colling did not breed as here asserted by Mr. Heriot, nor are his Improved Short Horns got by a Scotch bull, but the cross was as asserted by his lordship.

"The celebrated cow, Lady, (page 354) was got by a grandson of Bolingbroke—dam, Phœnix, by Faljambe.

"The grandson of Bolingbroke (No. 225) was got by O'Callaghan, son of Bolingbroke—dam, by C. Colling's lame bull.

"O'Callaghan's, son of Bolingbroke, (No. 469) was got by Bolingbroke—dam, a *red polled Galloway Scotch cow*.

"What breeder of Improved Short Horns would not be possessed of Major, or Western Comet, Lady's son and grandson.

"This gentleman [Mr. Heriot] appears to be running a wrong scent. Hubback's pedigree was endeavored to be stained by the assertion of having Scotch blood in him; not only John Hunter (whose father bred his dam) denies it, but Mr. Charles Colling informed me, that he had not the least doubt but Hubback was a *true bred Short Horn*."

* I have never known a pure Short Horn that would kick, and rarely a bull of this breed of any age, that would even menace with his horns. The grades invariably, so far as my knowledge has extended, preserve the same characteristic.

to be most suitable for interbreeding. I will now add, that in following up this cross, the great aim should be to continue to adapt the sire to the individual characteristics of the dam. *Pure blood is not all that is requisite in the bull*, and it will rarely or never happen, that the same one is adapted to each individual cow in a whole herd. Take, by way of illustration, the "Hoosier calf" of your Indiana correspondent "C." (given in your last) which is beautifully formed back of the shoulder, but has a heavy, coarse neck. On the other hand I can see from the window where I write, a half blood heifer which I call "Princess," which in the head, neck and crops, I have never seen excelled, even in a full blood, but the rump, back of the hips, is a little too thin—the hind legs somewhat crooked, and the hocks turned in. Now, it must be evident to any man, that the "Hoosier calf" should be crossed with a bull peculiarly delicate in his head and neck, even at the expense of a little of the fullness of his points behind—while "Princess" requires a bull unusually thick and full where she is too thin, straight in the leg, &c. The rule is, or should be absolute—never to breed from a sire and dam possessing *the same defect*. The bad point will appear increased in the progeny, and, it has been asserted, to an extent equalling the amount of the same defect in both parents *added* together! I am not sure that Nature is quite so mathematical as this in her proceedings, but she always punishes an infraction of her wholesome laws. The last point which I shall notice is, that the bull as well as the cow, should be descended from a family of good milkers. Though some have regarded this as mere theory, experience has satisfactorily proven that milking properties are hereditary in the male as well as the female line.

HENRY S. RANDALL.

Cortlandvile, April, 1840.

Labor-Saving Soap.

MESSRS. GAYLORD & TUCKER—As you admit into your useful paper articles on domestic economy, I venture to send you the following, which, on a trial of a year and a half, has proved fully equal to all the statements made in it. Any house-keeper, who will try it carefully and faithfully, need not fear disappointment.

Take 2 lbs. sal soda, 2 lbs. yellow bar soap, 10 qts. water, or in like proportion. Cut the soap into thin slices, and boil all together *two* hours, then strain through a cloth into a tight box or tub, let it cool, and it is fit for use. It should be placed in the cellar, at least during the winter, for freezing injures it.

DIRECTIONS FOR USING THE SOAP.

Put the clothes in soak the night before you wash. The next morning, put water into your kettle or boiler, (a boiler with a cover is best) *one*, *two*, or *three* pailfuls, according to the quantity of clothes you intend to wash, (2 pailfuls will be enough for most families) and to every pail of water add about *one* pound of the soap. As soon as the water, with its dissolved soap, begins to boil, wring out the clothes and put them into it, without any rubbing. Let them boil *one* hour, then suds them and rinse them in a good supply of water, and they will be clean and white. They will need no rubbing except a little on such places as are most soiled, and for that, no washboard will be required. If you have more clothes than you can conveniently boil at once, you may boil another set in the same suds in which you boiled the first, and with equal success. The suds are good also for cleaning up.

Colored and wollen clothes must not be boiled as above, but they may be washed in the suds weakened with a portion of water.

The advantages of washing with labor-saving soap, as above directed; are,

1. Much less hard work.
2. Less time.
3. The clothes will last longer.
4. The hands are less injured.
5. Less expense for soap, if you buy the materials as cheap as they may be bought, and make the soap yourself.

Six pounds of sal soda, six pounds of bar soap, and 30 quarts of water will make about 50 lbs. of the soap. For the soda, I have paid 7 cents per lb. taking 20 lbs. and for the soap 8 cents per lb. taking half a box. The expense therefore for 50 lbs., making and all, could not have been much over 2 cts. per lb. I have paid 5 cts. per lb. for labor-saving soap in Boston, by the box, and the virtue of that made at home was fully equal to that which was bought.

A pint measure will hold a pound of the soap, or a quart measure 2 lbs. The soap may be crowded in without much force, and thus the trouble of weighing, every time you wash, may be avoided.

Every person, on a little reflection, must see the reason why the above mode of washing possesses superior advantages. The philosophy of the process is too obvious to require description. Let it be tried. One experiment will cost but a trifle.

Those who have soft-soap may turn it into hard-soap, which boiled 2 hours with soda in the proportions above named, will make as good labor-saving soap, as that made with bar soap from the shops. The following directions for turning soft-soap into hard-soap, are taken from Gov. Hill's Monthly Visitor:

"To every *three* gallons of soap add about *one* quart of salt. Boil all together *half* an hour, then turn it out into a tub to cool. Cut the cake which swims on the top into pieces, and scrape off froth and other impurities, melt again (without the lye and water underneath of course) and pour it into a box to cool. You may then cut it up into bars of proper dimensions for drying. By adding a proportion of rosin, well pulverized, at the last boiling, you will have yellow soap, like that made for market."

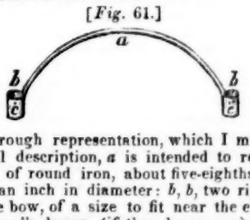
Some have said, the use of soda in washing, turned the clothes yellow. I am assured by those who ought to know, that used as above, it has no such effect. The repeated encomiums of the women of my household on the virtues of labor-saving soap, have induced me to take an account of the whole process of making and using, from their own lips, and I send it for insertion in your numerously and widely circulated paper, hoping that the wives of your subscribers will be profited thereby, and if they like it, make known the same to their neighbors, who do not read the Cultivator. I think they will save enough in one year to pay for a volume of the Cultivator. N. H.

Yoke for Breachy Cattle.

MESSRS. GAYLORD & TUCKER—I deem it the duty of every subscriber to an agricultural paper, who believes that he himself derives any benefit whatever from its perusal, to endeavor to contribute something besides his subscription, toward the benefit of others. This, too, he should attempt, whether he estimates his contributions as of great or only small value; for, if no more than two or three of his brethren can gain useful information from it, he ought to think his trouble sufficiently rewarded; since nothing is more certain than that we were all sent into the world, to labor for others as well as ourselves. He should ever bear in mind the truth of the quaint, old saying of William Camden, the great antiquary, that *"many a little makes a mickle;"* and, therefore, should always be willing and ready to add that little, however small it may appear, to the general stock. If he waits until he can make a contribution of such seeming importance, as to cause his name to be ranked among the agricultural benefactors of our country, he will either communicate nothing, should he be a modest man, or something, if he be self-conceited, that will be more wearisome than instructive to his readers, and much fuller of vanity than of useful information.

This brief preface must plead my excuse, should any be deemed necessary, for my present unconnected and desultory epistle For I address it to you on the principle first stated; and likewise from a belief that the experiment which I am about to recommend, is well worth making; and that at least one of the subsequent inquiries may elicit from some of your numerous, intelligent correspondents, highly useful information upon a very important branch of husbandry, in regard to which multitudes of our brethren are either most deplorably ignorant, or unpardonably neglectful. This experiment, if made, will test the utility of a very simple contrivance lately described to me, which seems well calculated for preventing the mischiefs so often done, by what our brethren "down east" have most aptly denominated *"breachy cattle;"* and which are so common, I believe, in every neighborhood throughout our whole country, as to require no particular description. They are, in fact, the certain consequences of bad fences, scant feeding, and inexcusable carelessness in their owners—things, by the way, which may too often be noticed by any who will take the trouble to look around them. But what is still worse, these same *"breachy cattle,"* together with our other farming stock of similar provident propensities, created by similar neglect, are the lamentable sources of more feuds, quarrels, and bitter animosities among neighbors engaged in agriculture, than all other causes of dissension put together. Any contrivance, therefore, which promises well to prove even a partial preventive to these sore evils, seems entitled to a trial. On this ground, permit me to give you a sketch of the one already referred to, as it was described to me—thus:

[*Fig.* 61.]



In this rough representation, which I make solely from verbal description, *a* is intended to represent a bow made of round iron, about five-eighths or three-fourths of an inch in diameter: *b*, *b*, two rings at the ends of the bow, of a size to fit near the extremities of the animal's horns, (if they have any,) to which they are fastened by small nails or screws, as at *c*, *c*. The curvature of the bow must, of course, be made to fit the particular shape of the horns which it is intended to render harmless; and so must be the size of the rings. This I offer merely as a thing worth trying, for I cannot yet speak of it from my own experience. But this is not necessary to convince me, that such a bow must be far preferable to the numerous awkward and cruel contrivances usually resorted to, for preventing the injuries inflicted upon ourselves as well our neighbors, by our own cattle: such contrivances, for example, as heavy boards swung over the creature's faces which nearly deprive them of the use of their eyes; enormously heavy yokes; and even large logs fastened to their necks by grape-vines, which soon cut through the skin, thus making painful sores, while the weight that they are compelled in this way to drag, almost take away that power of locomotion so vitally necessary to all animals, which are obliged to shift for themselves.

Selection of Seed—Shelter for Sheep and Cattle.

As to my inquiries, they will relate, on the present occasion, only to the two subjects comprehended in the following questions:

Is there not an important difference between the quality of the seed of the center stems, and lateral branches of all such plants as produce their seed like the carrot and parsnip?

Which is best—to shelter, or not to shelter, sheep and cattle from snow and cold rains?

It is probable, I think, that to some of your readers, the first query may appear trivial, and the second, even silly, unless I assign some good reasons for asking them. I must, therefore, take the liberty to state such as have prompted me to make the inquiries. We are all aware that the culture of root crops has become a matter of constantly increasing interest; consequently, every probable means of improving them, both in quality and quantity, ought to be subjects of a proportionate degree of attention. Again—most, if not all of us believe, that this improvement depends, in a great measure, upon the purity and excellence of the seed which we sow. Surely, then, it is well worth attempting to ascertain as far as practicable, every circumstance which can in any way deteriorate them. One cause of this deterioration certainly is, that the abominable lust of gain tempts too many of our professional seedsmen, to increase the quantity at the expense of the quality of what they sell, by mixing ripe and unripe seed together. This is obvious—even to the purblind, in all those kinds wherein the mixture can be detected by the eye: such, for instance, as beets and mangel wurtzel. And the fact is undeniable, that in almost every parcel we buy of these kinds, a large portion of the seed in each will be found to be scarcely half the size of others, and of a greenish instead of a brown color; showing, most manifestly, that they were gathered before they were ripe. Yet, we all continue to submit silently to this gross and fraudulent imposition, instead of publicly exposing the perpetrators of it, as we ought to do, for the general good. Another proof of this mixture having been made, may be seen when the roots are dug up; for some will be four or five times the size of others, although growing within a foot or two of each other, and in soil precisely of the same texture and fertility. Now, if this great difference in the size of beets and mangel wurtzel, be attributable, as I believe it is, chiefly, if not entirely, to the sowing of ripe and unripe seed together, is it not probable that the similar inequalities of size in carrots, parsnips and other roots which produce their seed in the same manner, may be owing to the cause which I suspect, and that is, the difference in quality between the seed of the centre stem, and of the lateral branches? But, be this as it may, I trust you will deem it a matter worthy of investigation.

I will now state my reasons for asking the second question. Know, then, gentlemen, that multitudes of our brethren—at least in the middle and southern states—have adopted, in regard to sheep, and, in many cases, to cattle, also, the favorite *"let alone principle"* of the advocates of "free trade." Nay, to such an extent have very many of them carried it, as to afford just grounds, if we judge by their conduct, for considering them so marvelously diffident of their own pastoral skill, as confidently to believe, that their *sheep certainly*, if not their *cattle also*, have much more sagacity and ingenuity than themselves, not only in guarding their own bodies against the inclemencies of the weather, but in protecting their own stomachs from the painful assaults of daily hunger—being left in instances innumerable, to choose for themselves in both particulars—although that liberty of choice, in countless cases, is worse even than Hobson's, who had, at least, *one* alternative of some value presented to him.

To both my queries I respectfully beg answers from such of your correspondents as can speak from their own experience, for I confidently believe that many will be benefitted thereby—especially, if they can give us the results of the *"let alone,"* and the opposite practice. Not that I anticipate the slightest advantage to the followers of the former, who belong, in general, to the anti-book farming class—gentlemen, whose habit it is to sneer with most ineffable contempt and self-complacency, at every thing they see in print; for, although like Toney Lumpkin, they can manage to read "your print-hand pretty well," they rarely take the trouble to do it, unless for the purpose of indulging in a senseless laugh at the author's labors.

With sincere wishes for the success of your highly useful paper, I remain, gentlemen,

Your constant and much benefitted reader,

JAMES M. GARNETT,

April, 10, 1840. *Of Essex Co. Va.*

Peaches—Change of Fruit.

MESSRS. EDITORS—I have one thing which I wish to communicate to the Cultivator, concerning peach trees, viz: I have a number of trees of the yellow kind, which ripens usually about the first of October; but last the season they bore fruit resembling the red rare ripe, and ripened about a month earlier than ever before. Now, the question is, What was the cause of this change of color and time of ripening? I can not tell, unless it is caused by some disease which may cause the premature death of the trees. DAVID FOOTE.

West Chester, Ct. Feb. 1840.

Value of Agricultural Papers.

MESSRS. GAYLORD & TUCKER—We often hear the old adage, "never too old to learn," and I think we might safely add, none are too wise to learn. In calling on my neighbors to subscribe for the Cultivator, I find many who are too well versed in agriculture to be taught; they understand the business perfectly well in all its branches, and as for paying away their money for that which is worse than nothing, they will not do it. Now I am fearful such men stand in their own light. I know I have been prejudiced myself, and I fear there are others in the same situation. I once thought agricultural publications were useless—that they treated on new notions and the like, that were of no consequence to any one; but I find I was much mistaken. My views on the subject were altogether incorrect. I never have read a number of the Cultivator, without obtaining some useful knowledge from it. I have found many facts laid down in its columns, that I had learned before by dear-bought experience, and much too, that probably I never should have learned in my own private sphere. Thus we see that by mingling our minds together, and giving each other the results of experiments fairly tested, all are benefitted; and I am fully persuaded, if any one is benefitted more than another, by agricultural publications, it is the experienced farmer. There is no one so capable of judging of the different kinds of soils, and making the best selection of different crops, and applying manures to secure a rich reward for his labors, as the observing farmer; yet to arrive to perfection on this point is past the comprehension of man.

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Management of Milch Cows.

I have read with much interest the remarks of your able contributors on stock, and especially on milch cows; yet there is one particular in the management of milch cows which seems to have been passed over unnoticed—that is *milking*. Perhaps there is no one point of dairying treated with so much neglect and indifference, and attended with as great loss to the dairyman as milking. Not more than twenty-five years ago, it was considered a good lot of cows to produce 200 pounds of cheese to the cow on an average, and the farmer who obtained that, was a skillful dairyman; and even at the present day, many keep along in the same old track, doing well enough as they term it, while others obtain 500 pounds, and some have gone as high as 600 pounds and over, besides a good quantity of butter. How is this difference to be accounted for? One reason I would give, is milking. A cow, to give a large quantity of milk, should have one steady hand to milk—one that can draw the milk quick and easy; care should be taken to milk the cow perfectly dry (or in other words clean.) Another important object is to milk at regular hours. In long days, cows should be milked and turned to the pasture before sunset, that the time between milkings may be nearly equal; yet the practice with some is to work in the field as long as they can see, then drive up the cows and have them milked by inexperienced hands, and those too who take no interest in the business; then leave them in a close yard during the night. I have always noticed that those who make an odd job of milking, never realize much profit from their cows. That there is a great difference in cows, I will admit, though I think there is more in the management of them than in the quality; yet the farmer should be very careful in the selection of cows for the dairy. I find some of my best cows would be counted worthless if they had different hands to milk them, and those, too, who were inexperienced in the business. I am often told by my neighbors that I have some peculiar method of making more cheese from the same quantity of milk than they; and it is true there may be something to be considered on this point; but I never as yet have found the secret of making butter and cheese without milk.

Another reason is, *good keeping*. Cows should be kept in warm stables, well littered, until late in spring. The practice of letting cows lay out on the cold wet ground as soon as it is bare, is a bad one. They should be kept up and well fed, that they may be in good heart and high order when turned to grass. Salt should always be kept in troughs under sheds that cattle can have it at their command throughout the year. Another fact of much importance is stabling cows early in the fall. As soon as cold storms come on they should be stabled, which will add one-third to the quantity of milk. Stantials are to be preferred for putting up cattle, allowing each one three feet, and boarded between the stantials to keep the fodder from wasting; the stantial fastened at top by running thro' the upper timber and a long iron link, made to drop on the top, which by raising one end will loose the moveable stud of the stantial. Stable-floors should be a little sloping, that a dry bed may be kept to keep the cattle clean and comfortable.

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Horn Ail.

I have perused with deep interest the remarks of different writers on the subject, of horn ail. I can fully accord with Mr. Payne and Mr. Warner, as to the cause of murrain or horn ail. I have been troubled with that dreadful scourge among my cattle for more than six years, and wish I might be informed of a sure preventive from some one of your numerous subscribers. I have tried many experiments, and I think to some advantage, but have found no certain remedy—that the complaint arises from an obstruction of the gaul duct, I think there can be no doubt, and any thing that would assist that organ in the discharge of its regular functions would in a certain degree prove effectual. The cattle which are most liable to this complaint are those in high order; yet I think those in poor flesh and very weak might be alike subject to the disease. The complaint is sometimes discovered first by bloody urine, sometimes by swollen udder, and sometimes by the animal's shaking the head, the eyes and head swollen; at other times, comes on gradually, the victim standing with the head against a fence or barn, eyes dull and sunken, horns generally cold, though not in all cases, and when bored are found to be hollow. I have generally been very successful in saving my cattle when attacked with it. My method is to bore the horns on the under side near the head, and with a syringe force in a composition of salt, pepper and vinegar; put spirits turpentine on the head and horns, bleed in some cases, and keep the holes open in the horns that they may discharge freely if requisite; soot and pepper given internally is good. I have lengthened out my letter too long already, yet there are some other things I should like to notice, but shall leave them for more able pens.

A. B. COLE.

Williamstown, (Mass.,) March 24, 1840.

Experiment in Pork Making.

MESSRS. GAYLORD & TUCKER—I notice your excellent correspondent, Mr. Robinson's no less laughable than true picture of the "Hog Illustration" in this month's number of the Cultivator, just at hand, but as I have lately had my say pretty extensively on the subject of the improved breeds, I shall leave the reversing of the "illustration" to the graphic pen of Mr. Bement, and give you in lieu thereof my first experiment in making pork, as a pendent to that of Mr. Robinson's.

Tho' bordering on the populous and commercial mart of Buffalo, my farm is still mostly in the original forest, and backed to a great extent by woodlands, the home, in large herds, of the veritable originals from which were drawn the faithful portraits of the savage Alligator and desperate Landpike. From this prolific herd, I was constantly favored, morning, noon and evening, by *friendly* calls, and without deigning to ever say, "by your leave, sir," they unceremoniously helped themselves to whatever lay in their way; all species of grain and roots seemed alike delectable to their omniverous appetites, and if a brood of chickens, goslings or ducks, or even a young lamb got astray, wo worth the day! it was but *presto!* and a smack of their greedy jaws, and goose and biddy, and duck and lamb, had gone to their last account. I believe even that they once devoured a fine large calf for me.

Conspicuous in this train, I frequently noticed a tall, long, lean, gaunt sow, with nine whopping pigs, the beau ideal of her gentle self. She was apparently the "queen o' the herd," in the forest round, and her genius and exploits cannot better be described, than in the language of the poet,

> "Twas her that led thro' every fence,
> O'er field, o'er bog, by woody dell;
> 'Twas her whose clap of cavern'd jaws,
> To all things living rung the knell."

Well, gentlemen, this at length became unendurable; and as with all my diligence of inquiry I could find no owner for the roaming brutes, I determined on the next foray, if possible, to make prisoners of at least the head and offspring of the offending moss troopers, and cage and fasten them. Alas, for the then innocent simplicity of my knowledge in hogology! I supposed that a pig was a pig the world over; that the wolfy gauntness described arose from much roving, and a scantiness of food, and that confinement and plenty to eat, would soon put them into the *daintiest* of pork. So the next time my lady queen and her progeny made their appearance on my open premises, I sent a couple of men to drive them into the yard. They pretty soon returned breathless with their chase, and a report, "that them are critturs wan't to be cotched no how, and wouldn't drive even the way a body knocked 'em down and dragged 'em." Well I detached a *corps de reserve* of four men more, who soon came back in the same condition, and with a similar report to the first. So *messieurs les sauvages* won't come in and surrender; very well, like Uncle Sam in the Florida war, I resolved to call on the aid of my dogs, and have here to add, that I was rather more successful than the old gentleman seems to have been as yet with his Cuba Bloodhounds, for no sooner were an Irish Greyhound, a stout Newfoundlander, and a pair of bull Terriers put on the scent, than the men soon had the land loafers by the heels, and into a double planked high roofed pen.

Now, sirs, came the tug of war—potatoes were just ripe, and a man was set to digging, boiling and feeding. Well, dig and boil, and feed, he did and nothing else, from day break in the morning till dark at night, steadily, day after day, which was responded to on the part of the hogs, by gulping down and wasting the food as fast as they could get at it, squealing and fighting with each other, pawing, rooting and tearing at, and gnawing the thick oak planks that hemmed them in. I occasionally paid them a visit, and they universally received me with a general yell, and springing up toward the open place of the pen as high as they could reach. To my great astonishment, so far from witnessing any gain from week to week, it, on the contrary, seemed that they only grew more gaunt. I thought it was the fault of the food, and I ordered it changed to a varied mixture of oil meal, oats and barley, but still the result was the same. I then put them to corn, and lastly, corn meal made into thick pudding, but it proved but another edition of the nursery ballad, of the wife that sought to rid her hands of the stain from the blood of her murdered husband:

> "The more she washed the more she might,
> 'Twas down by Linkum-lidie."

By way of interlude to all this *fatting* tragedy, I had in the mean while, the pleasure of various daily calls from my distant neighbors and travelers on the road, humanely inquiring—"What could be the matter with my hogs? Want they starved? Did'nt the feeder abuse them? Want they caught in a trap somehow," &c. &c. After each interrogatory, I ordered fresh litter, extra feed and attention, but Mr. Robinson has graphically told the whole story, and I will not repeat it; and to cut the matter short, after the hogs had devoured thrice as much food as their carcasses could ever be worth, I ordered them killed, in despair of ever seeing any fat accumulate on their ribs. Nor was I here at all disappointed, for when I came to inspect them dressed, there was *primus* a thick rhinoceros rind, about half an inch of bluish white gristle, *secundus* a streak of tough lean, and lastly, a great thick bone!

Now for the pork. As a commencement, a barrel of it was sent out to some wood choppers, hutting it in a shanty, and who, tho' blessed with appetites akin to a polar fisherman, and that had *gone it* occasionally on a *lean coon*, they could not stand this, and after frying and boiling, and baking, and roasting, they shouldered their axes and rebelled in a body. I then ordered it fed out to the dogs who had been instrumental in aiding to catch the living subjects, but tho' long and *elaborately* cooked, it was soon no go, and they too rebelled upon the stuff, and the last that I saw of the barreled pork, was the upsetting of the same by the gardener, together with the brine and salt into a compost he was manufacturing into manure.

Now all these are veritable facts, without a shade of embellishment; it was my first experiment in Alligators, Landsharks and Pikes, and I *guess* it will be the last. I immediately after this set myself to reading, inquiring and searching for the best breeds of swine, and soon lit upon the quiet little Chinese. These were in a short time followed up by a choice selection of the splendid Berkshires, from the stock of Messrs. Lossing and Bement, of Albany, those excellent breeders the Shakers of Watervliet, and the Messrs. Brentnalls of Canterbury, together with some fresh importations direct from the best bred stocks in England, on my own account, and any time that any person can show that he has better breeds than the above, that moment will I sacrifice my present carefully chosen and high bred animals to the knife, and become his purchaser. Your ob't serv't.

A. B. ALLEN.

Buffalo, May 12, 1840.

Whitington Wheat and Chinese Corn.

GENTLEMEN—The Whitington wheat, which the late Jesse Buel, in the January number of the Cultivator, for 1839, said was "the handsomest sample of wheat we have ever seen of any kind, although it is a spring wheat. The berry is large, plump and very white, the skin apparently thin, the heads seven inches long, the straw stout and bright," &c.; has I understand been a complete failure in this country *as a spring wheat*. Permit me to communicate my experiments on its culture, which may show that we have still a fair prospect of cultivating, with success, this new and beautiful variety of wheat. On the 9th of April, I sowed half a peck on a light gravelly soil; it grew with surprising luxuriance, throwing out the most vigorous stems, averaging, I should think, fifteen to each plant. They continued for sometime growing and spreading over the ground, so as to make me regret not having giving the half peck three times the quantity of land. Half the plants were soon destroyed by a large white worm, but there were still remaining sufficient to justify the hope of an abundant crop. The stems, however, never rose from the ground, nor did they throw out a single seed stalk, but gradually died. This convinced me that in this country it could not be a *spring wheat*, whatever it might be in the different climate of England. Having reserved about half a pint of seed in case of accidents, on the 12th of September, I planted thirty-six grains in rows, ten inches apart, and six inches distant in the rows, to allow room for its peculiar spreading growth. Thirty of these grains vegetated with remarkable vigor. When the snow disappeared in the spring, they presented a very healthy state, spreading their numerous stems so as to completely cover the ground; unfortunately a fence was blown down by a violent wind, which admitted some geese to eat it off close to the surface of the earth. They are now recovering from this accident, and look particularly strong and healthy; though the leaves are not yet of that remarkable size they were before. On the 21st February, I sowed the remainder of the seed, which appeared above ground on the 15th day, and although a considerable quantity was destroyed by fowls, the rest looks very well. This last sowing has been exposed to the influence of the subsequent frost and snow, without being injured in the slightest degree. By these two experiments, I hope to be able to test its qualities in this climate as a winter, and as a very early spring crop, and also to prove that its failure as an ordinary spring crop, must be attributed to the difference of climate alone, and not to any misrepresentation of Mr. G. Thorburn or Mr. Whitington.

One word on the "Chinese Tree Corn" to conclude.

From my experience with this corn during the last year, and from all the contradictory evidence brought forward, for and against it, I am strongly inclined to think that mistakes have arisen in the seed, that is, that the Chinese has been confused with the corn called the "Baden," both new varieties introduced last year. I tried both. The Baden exactly resembles the description of the Chinese given by some writers; it grew very high, ten or twelve feet, produced its ears when other corn was ripe, remained green till the end of October, and was then quite soft, requiring to bring it to perfection two of our summers. The Chinese, planted in hills in the usual way, presented no difference from common corn. But ten grains, planted in a row of eighteen inches asunder, each seed threw out five distinct and perfect stalks (not suckers) having from one to four ears on each; some of these did not arrive at perfection, probably owing to the land not being sufficiently good, yet, although it was all blown down and much injured, with two of the ten plants eaten off by a horse, from the remaining eight, I gathered thirty-three ears, at least as good as the seed, thus averaging rather more than four good ears from each seed planted. It was ripe full three weeks earlier than the common corn of the country. Although the seed was planted in single grains, eighteen inches apart in the row, they were much too close and crowded, each plant resembling a hill of common corn in which five grains had been planted. I propose this year to plant two grains at a distance of at least two feet, and pull up the weakest so as to leave more room for themto spread. Should the result be worth communicating, you shall hear of it. W R.

April 5, 1840.

Remarks on the Study of Meteorology.

In the former papers on this subject which have been published in the Genesee Farmer, my object has chiefly been to prove the practicability of advancing meteorology,—in the first place from what has been already done in a desultory way, compared with what might be done by increased attention; also,* from the general similarity of the objects embraced in this science, to those embraced in other sciences, in which great advancements have been made. In those papers, also, some remarks were made upon the kind, and method of obtaining those facts or data, by the study and comparison of which, the proposed improvements are to be effected. It is to this part of the subject that I design at present chiefly to confine myself.

The meteorological observations for this purpose may be divided into, 1st, those of the clouds; 2d, of the wind; 3d, of the state of the air; 4th, of occasional meteors.

I. That part of a meteorological register relating to the CLOUDS, should embrace an account of the modifications to which they belong, their motion and their quantity, with the particular appearances of the different modifications or species of clouds. 1. The *modifications* of the clouds have been already well described in an article in the Genesee Farmer, and under the article Clouds in Dictionary of Agricultural Terms in the same work, which two, especially the former, render any thing farther on that part of the subject unnecessary at present. 2. The *motion* of the clouds includes their course and velocity. Both of these may be known with tolerable accuracy, (the latter perhaps rather vaguely,) by observing them as they pass some elevated fixed object, provided a meridian line is known, and they are observed at or near the zenith. As the different strata of clouds frequently move in different directions, and with various apparent velocities, it will be important to observe the motion of each stratum separately, when circumstances admit of it. When the clouds cannot be observed at the zenith, which is sometimes the case, the zenith motion should be estimated from the observed motion. Observing the motion of the clouds may be facilitated, and perhaps rendered more accurate, as the writer has partially tried, by laying a looking glass or mirror on the sole of a window in a horizontal position, so that the eaves of the house or some other fixed object above, with the clouds passing it, may be visible in the glass; then if the position of the latter, or of lines drawn upon it, be known with respect to the points of the horizon, the course of the motion may be determined with considerable accuracy, and the velocity may be known relatively, by noting by a watch the time occupied by the image of the clouds in passing a certain space on the surface of the glass. These hints may obviously be varied or improved upon according to circumstances, but those whose business calls them to the fields, (in some respects a very proper place for such observations,) will frequently have to content themselves with ascertaining the motion in the manner first alluded to. 3. The necessity of registering the *quantity* and *particular appearances* of the different modifications, is too obvious to need much elucidation; as an example, however, it may be observed, that rain is almost sure to follow immediately a certain appearance of cirro-stratus, yet the whole sky is often covered with that modification in a different appearance, and fair weather the immediate consequence; and some account of the quantity of the clouds, and of each modification, and whether the sky is entirely, partially, or in what proportion it is covered with them, appears obviously to be little less important. To this part of the register of the clouds, belongs the description of those circles and other similar phenomena which sometimes attend the sun and moon, and occasionally the stars, and are caused by the refraction of their light in its passage through the clouds and vapors of the atmosphere: hence as the varying height, structure, and density of the latter, cause the different phenomena of circles, coronas, parhelia, &c. with their subordinate varieties, it appears reasonable that an accurate description of the different circumstances of color, distinctness, &c. and an exact measurement of their apparent dimensions would form one of the most important avenues of information upon the state of the clouds, which the meteorologist could possess.

II. The WIND is to be observed in regard to its course and strength. Both of these may be ascertained by means of an instrument called an anemometer, of which several kinds have been invented. That part of the instrument which shows the course of the wind, exists in a simple form in the common vane or weather-cock, often placed on buildings, and which, if properly constructed, and so elevated as to be unaffected by surrounding objects, as hills, forests, buildings, &c. will answer that part of the purpose of an anemometer; and the observer may, of himself, by attention, form a tolerably correct idea of the relative strength of the wind. It is very desirable, however, that the strength of the wind should be more accurately known, but as the description of an instrument for that purpose so as to enable the reader to construct one properly, would occupy too much space, I shall omit it.

III. The STATE OF THE AIR is subject to variation in four different respects, viz: temperature, gravity, moisture, and electricity. 1. The thermometer is the instrument used to determine the *temperature*, and is sufficiently well known to render a description in this place unnecessary; and the small price at which it may be obtained, places it within the reach of at least any farmer. The thermometer (and the same applies to other instruments,) should be observed at stated periods, and as frequently as practicable. 2. The variations in the *gravity* of the air are determined by the barometer. This instrument, in its usual form, consists of a glass tube about 34 inches long, fixed in an upright position, closed at the upper end, and having the lower and open end placed in a vessel of mercury, a column of which is supported in the tube by the pressure of the air, the height of which consequently varies with that pressure, that portion of the tube above the mercurial column being a vacuum. This apparatus is attached to a frame or board much in the manner of a thermometer; near the upper end of the tube a scale of inches and decimal parts is drawn upon the board, estimated from the surface of the mercury in the vessel. The mean height is about 29½ inches, and the range varies in different climates from about 1½ to 3 inches. Various alterations have been proposed in this instrument, chiefly for rendering its scale of greater extent, but few of these are to be as much depended upon as the usual form. The cost of this instrument, though greater than that of the thermometer, is not such as should deter the owner of a score of well tilled acres from obtaining it. 3. The instrument used to determine the *moisture* of the air is called the hygrometer. The various constructions of this instrument appear to be so little adapted in its present imperfect state, either from a want of accuracy or convenience to the purposes and persons, (generally) proposed in these papers, that (from this cause, and from a want of space) I am induced to omit some remarks I had intended to make upon the construction and use of it. The hygrometer, however, is certainly a very important instrument, for the quantity of moisture which the air contains must have a great influence on subsequent weather, and it appears to be the more important as our natural senses are but little capable of determining changes in atmospherical moisture with precision, and hence improvements in it, either with respect to accuracy, convenience, or cheapness, so as to place it within the reach of persons of limited means, are much to be desired. 4. The *electricity* of the air is shown by the electrometer, the form of which is usually somewhat varied to adapt it to this purpose. From a want of space, and likewise because our knowledge of the influence which local circumstances undoubtedly have upon the indications of this instrument, is too limited as yet to enable us to ascertain the actual relative strength of atmospherical electricity from observations made under different circumstances, I shall omit any account of it for the present. However as our knowledge of these irregularities and the means of obviating them, is chiefly to be acquired by observing the electrometer under those different circumstances, and also in connexion with the other meteorological observations, it will evidently be proper to insert its indications in the meteorological register wherever it can conveniently be done: and this is the more to be desired, as modern discoveries would appear to indicate a much more extensive and general agency of the electric fluid; and especially (it may be supposed) in the atmosphere, where its effects are often so strongly exhibited.

IV. The OCCASIONAL METEORS are chiefly rain, snow and hail; to these may be added dew and frost. With respect to the former, the principal points to be observed are their quantity, the rapidity with which they fall, the size of the drops or particles, with any additional particulars that may be thought worthy of notice. The quantity and rapidity of the rain may both be observed by the pluviameter or rain gauge, the best form of which is perhaps that of a narrow cylindrical vessel, placed in an upright position with an enlargement or funnel at top. A light rod about as long as the height of the vessel, is attached to a float which fits the inside of the vessel like a piston, but quite loosely, the rod passing freely through a hole in the middle of a cross bar placed where the vessel joins the funnel. The rod is marked into divisions which bear the same proportions to inches and parts that the area of the opening or top of the funnel, bears to the area of a section of the vessel: the rain which falls within the funnel descends into the vessel, and raises the float and the rod, the divisions on which that have passed the cross bar show the inches of rain that have fallen. Snow and hail require to be melted for the instrument, but their depth should likewise be measured as they lie upon the ground. If the top of the funnel is six and the cylindrical part two inches in diameter, hundredths of an inch may be easily observed by it, each division on the rod corresponding to an inch, being just nine inches; in this case the vessel ought to be at least 36 inches high. It may be constructed of strong tin plate or sheet copper at a moderate cost. The rapidity of the fall of rain, &c. may be known by observing the rise of the rod at short intervals, but something further respecting the apparent copiousness or slowness of the fall, together with the size of the particles, the times of beginning, continuance, &c. should be carefully observed and noted. Dew and frost, (by which latter is meant frozen dew,) should be noticed when they occur in regard to their quantity, and other attendant circumstances that may be thought worthy of notice.

I shall dismiss the subject at present with some concluding remarks.

In describing the appearances of the clouds (which is perhaps the most difficult part, and the other atmospherical phenomena when the observer is not provided with instruments,) it is particularly to be desired that the least ambiguous terms should be made use of, and the same terms used as exclusively as may be to express the same thing. In short, such a description should be given that not only the writer, but another understanding the fixed construction which is given to any peculiar terms, may with ease obtain a correct idea of all the circumstances of the weather from reading it. This rule may seem superfluous, but it is thought it will not be found so, for though the keeping of a register of this kind is not difficult, yet this thing is rather apt to be lost sight of, especially in describing the clouds. The importance of a nomenclature of meteorology or system of terms, adapted to express both singly and in definite classes, the various objects and phenomena connected with the atmosphere, will, (it is believed,) become obvious to most of those who may follow up these suggestions but the framing of such a nomenclature seems improper to be attempted as a preliminary step; much meteorological knowledge may doubtless be obtained without it, simply by employing terms of common language with a few slight alterations, a certain amount of which knowledge is requisite to form one on such principles that constant alterations shall not be necessary. In corroboration of which may be mentioned the course of our present state geologest, (of Penn.) in "studiously abstaining from framing a nomenclature for the several foundations * * * * until he becomes entirely familiar with the many modifications they undergo;"* also, it may be observed that many of the most important chemical discoveries were made before the adoption of the nomenclature, which has, (indeed, justly) added so greatly to the fame of Lavoisier and his colleagues.

Montgomery Co. Pa. Feb. 28, 1840. B. S.

* Gen. Far. vol. IX, p. 222.

Culture of Wheat.

MESSRS. GAYLORD & TUCKER—The mode I would recommend, would be to sow on the young wheat 6 qts. per acre of the largest kind of clover, as soon as circumstances will admit in the spring. After the wheat is cut, the young clover will be convenient to turn your lambs upon, after taking them from their mothers. If you have no sheep, turn in your cattle, but sheep are much the best; they are not likely to pull up the young plants by the roots, and the closer they are eat to the ground, the greater will be the growth the succeeding spring; when, let it grow some 4 or 5 inches before you suffer any thing to pasture on it, then you may turn in your young cattle, which will soon make them fleshy, and such beef will always sell at a remunerating price; but do not depasture too bare, taking out your stock so as to allow a heavy growth of clover by the middle or last of June, at which time plow it under by the help of a chain, fastened round the beam back of the colter, and the other end hooked to the off side of the off horse's wiffletree, allowing the chain to belly down and drag the ground, which will enable you to turn in nearly every spear of clover; in about a week drag it; on the first of August drag it again, or as many times as it may require previous to the middle of August, at which time have it plowed, running your furrows the contrary way to your first plowing; then drag it across the furrows. By the first of September have it again plowed, the furrows running the same way as when you first plowed it.

Sow the wheat (at least 2 bushels an acre,) and drag it in, *leaving as many clods or nubs as you can*, that is, *not* drag the ground fine. The wheat will attain a great growth in the fall, and get well rooted, consequently the frost will have little or no effect, and I think not as likely to blast in the summer.

In the spring, the frosty nights and warm days will cause the clods to fall to pieces around the roots of the

* 2d Annual Report, p. 20.

young wheat. Rolling in the spring has a beneficial effect; but rolling in the fall ought to be dispensed with, as being very deleterious.

Before sowing the wheat, if not free from weeds, soak it in brine strong enough to bear up a potato, and afterwards roll it in lime. By this mode of farming, the land is enriched, or at any rate not impoverished, and by apportioning two parts of his farm to be cropped alternately, the farmer may nearly always raise about double the quantity than under the old system; but it is no use to sow wheat or any other grain on land that is not congenial to its growth.

Yours, in the hope of better times,

Skaneateles, Feb. 4, 1840. R. C. F.

The Osage Orange for Hedges.

To the Editors of the Cultivator—Your letter enclosing some inquiries from one of your corespondents on the subject of the Osage Orange for hedges, has been duly received; and I take pleasure in giving all the information in my power. For several years I have endeavored, on all suitable occasions, to recommend this plant to notice, under the conviction that it will prove far more valuable than any other now cultivated in this country for hedging.

The Osage Orange (*Maclura aurantiaca*) is a native of Lousiania and Arkansas: but it is perfectly hardy in this climate. It forms a tree of the second or third class, is very branching, each branch armed with a number of rigid spires; and grows well in any good soil. The wood is remarkably tough, and is probably as durable as the locust. It bears transplanting as well as any plant I have seen. Some of the trees are barren and some fertile. The fertile, or female tree, bears fruit abundantly in a few years, each fruit or berry weighing from twelve to eighteen ounces, and containing from 100 to 250 seeds. Planted early in the spring, the seeds are certain to germinate; and the plants grow so rapidly that in a short time they will make a beautiful and impervious hedge. The first tree that I planted, which is now about twelve years old, is fifteen or eighteen feet high and very spreading; and has produced as many as 200 berries of a season. I have some doubt whether it will perfect its seeds as far north as Albany, but it has borne fruit in the neighborhood of Philadelphia.

Although I have been in possession of the Maclura for several years, and have raised a number of plants from the seed, yet circumstances have prevented me from fully testing its merits for hedging. No person, however, can entertain a doubt of its adaptation to this purpose, who will carefully examine its growth. I have seen an excellent hedge of it between Philadelphia and Germantown, which was apparently four or five years old, and very dense—though less dense than it might have been rendered by closer pruning.

It would be desirable that some of our enterprising seedsmen should promote the general interest as well as their own, by obtaining a parcel of the seeds and offering them at a fair price. Any gentleman, however, may readily get them for his own use if he has a correspondent residing in the vicinity of the Red river. They should be brought round in the fall or winter, and not picked from the berries until the time of planting. There are 600 seeds in an ounce. When a small number of plants are had from the nurseries, the male and female should be both ordered, and set contiguous to each other. I have occasionally disposed of seedlings of the Maclura for the accommodation of those who wished to make some trial of it; and I think they may be afforded at a price not much exceeding that of the thorn, for an equal length of hedging. From one and a half to two feet apart would be sufficiently close.

Among the uses to which the Osage Orange may be applied, is that of feeding silk worms. It is a milky plant, and belongs to the same natural order as the mulberry, and I have found the worms to feed on the leaves with as much avidity as they do on the multicaulis. The silk is very glossy, but I have thought the fibre somewhat finer than that produced from the mulberry. THOS. S. PLEASANTS.

Beaverdam, Va., 5 mo. 4, 1840.

Management of Bees.

Messrs. Gaylord & Tucker—I will relate to you some of our experience in regard to the management of bees. It was our practice formerly to place them in hives in an open bee-house, by which method we were liable to losses in three ways, viz: by swarming, by the moths, and by severe weather in winter; beside which, in order to obtain honey, we were obliged to destroy the bees.

A few years since, we adopted the following plan, which has thus far been very successful. A hive of bees was placed in a small dark room near the wall with an outlet large enough to permit them to pass in and out freely. A box was then placed near the hive, with the open end facing it, so that it might easily be detached from its resting place, and the bees were permitted to work unmolested until the autumn. When the cold weather has driven the swarm to the larger hive, the box is taken off without destroying a bee. I might add that it is not essential that a box should be used, as they will work on the outside of the hive without it. Our practice has been to take up a part in the fall and part in the spring, so that they may have enough to winter upon.

We have this year taken off sixty or seventy pounds, the product of one swarm. By this method of treatment we avoid the losses to which we were before exposed, and have besides an abundance of the best of honey. I ought perhaps to say, that our bees are in a chamber, which may be the reason why they are not troubled with moths. Respectfully yours,

S. G. HUNTINGTON.

Hadley, Mass., March 7, 1840.

On the Culture of Cotton.

Messrs. Editors—Permit me to offer some answers to your Princeton (N. J.) correspondent, dated 16th November, 1837, published in the Cultivator, vol. 4th, page 163.

Question 1. What soil and climate is the most suitable for the culture of cotton?

Answer. A dry, rich, friable soil, and warm climate.

Question. What kind of seed is found in the southern states to be the most productive and profitable?

Answer. In the northern section, the common green seed is best; and in the southern section, Petit Gulf.

Question. What is the best method of, and best time for, planting?

Answer. As soon as there is no probability of the plants being destroyed by frost. In this latitude (35 degrees,) about the 10th of April is thought the best for planting. The usual method is to make ridges by throwing four furrows together, with a plow having a moldboard; then run a small plow with a harrow tooth or colter; sow the seed in this furrow, at the rate of five bushels to the acre, when the rows are 3¼ feet apart, and cover by drawing a block, having a notch in it to fit the ridge, over it. The seed should be covered from one-fourth to one inch deep, and not deeper.

Question. What tillage must precede and succeed the planting? Can two crops be obtained in one season?

Answer. If the ground has been well cultivated the preceding year, nothing more is necessary than putting four furrows together for a ridge; after planting break up the middles; as soon as the plants are up, weed them with a cotton-hoe, (a light hoe much used in the south,) then plow it as often as every fourteen days if practicable, with some light plow. The side harrow is of great service in cotton culture. (It is made by putting a piece of scantling 22 inches long, 4¼ inches square, across a beam at an angle of 45 degrees, in which is placed five common flat-foot harrow teeth.) In plowing, nothing more is necessary than to keep the surface mellow and clear of grass and weeds, except in very dry weather, when it should be plowed deeper to make the ground moist. The hand-hoes should go over it every eighteen days carefully, taking out such grass as may be left by the plow or harrow, and thin out the stalks gradually, to four inches. One crop is all that can be made in one season.

Question. When and how should it be gathered? and how can it be most expeditiously cleaned, pressed, and prepared for manufacture or exportation?

Answer. It should be picked as soon as it is sufficiently opened, so that a hand can do good work. It is gathered by one hand's going between two rows with a small hamper basket, which will hold 30 lbs. called a hand-basket: he picks alternately from these rows until he fills his hand-basket, then empties it into a large one, which he keeps for that purpose—when this has as much as he can carry, he takes it to the gin or cotton-house, where it is sunned if necessary, and housed. A hand will pick in the early part of the season 100 lbs. of green seed, and 200 lbs. of Petit Gulf. It is cleaned by a very common machine called a gin, which will pick about 1,800 lbs. of seed cotton per day; and pressed by a vertical wooden screw into bales of 400 lbs. requiring 5 yards of bagging and seven ties of rope to hold it in shape.

Question. What is the fair average yield, cost of culture, bagging, machinery, &c. and the nett profit per acre?

Answer. In this latitude, 800 lbs. is as much as may be calculated on. On the rich lands of Mississippi, South Alabama and Florida, 1,600 lbs. may safely be calculated on. A gin is worth $150; screw $50; negroes of good qualities and suitable age, sell for men $700; women $500; girls, boys, and those advanced in age, less. There is little cotton made by hirelings. One hand can cultivate 10 acres in cotton, and make a sufficiency of corn, wheat, oats, &c. for family use, on a large farm, and something less on a small one. The price of cotton varies, as well as bagging or rope. A great portion of cotton is made by slave labor. Cotton in bale, averages 8 cents per pound, and bagging 3 *a* 3½ cents per yard.

Question. To what diseases is the cotton plant of our country liable, and how remedied?

Answer. Lice, when young; remedy none. When more advanced, rust, which is more destructive than every thing else. This is also caused by a minute insect scarcely discernable to the eye, which deprives the plant of its sap, and it turns of a russet color, whence its name. Cotton is also sometimes much injured by the common cut-worm, and by a small worm called the army worm, from their going in vast quantities together; sometimes grass-hoppers are troublesome.

Question. Is the soil or climate of East Florida, 50 miles south-west of St. Augustine, adapted to the growth of cotton, and what kinds?

Answer. The climate is suitable in any part of Florida, and so is the land when dry and rich enough. There is some fine land in the direction spoken of, on How Creek, Dunn's Lake, Lake George, and the St. John's river: (though, perhaps, sugar would be a more profitable crop.) The Petit Gulf, or Mexican, is the best cotton to raise in Florida, except just on the seacoast, where the Sea-Island grows. I think in the vicinity of Fort King, and in Alachua county, the best cotton country I saw in Florida. Cotton, rice, indigo, sugar, Spanish tobacco, Indian corn, all grow well in Florida—it is susceptible of being a fine silk and wine country. With respect, I am, &c.

CHARLES S. JONES

Bolivar, Alabama, March, 1840.

The Place to Dig a Well.

I observe in the second number of the Cultivator, a communication from Myron Adams, on the method of determining the places of underground streams of water, by a twig from the peach tree. As I have also seen that method practiced in former years, I wish to state briefly my experience. The principal experiments were made by a friend, of unimpeachable uprightness and honesty of character.

A well had been dug, but the quantity of water was found insufficient. The person to whom I have alluded, came on the ground with his forked peach stick, and by carefully holding it with his hands, according to the usual method, as he walked across the ground, found it to turn and point downwards, within a few feet of the well; and the stream thus indicated, was pronounced from the nature of the experiment to be with, in a few feet of the surface. By repeated examinations, the stream was traced to a distance of many rods up a gradually rising field, the twig always turning as he passed over the line of the stream, from whatever quarter he approached it. The experiment was considered very satisfactory.

Before quitting the ground, however, he instructed a by-stander, who had never seen the experiment before, in the manner of holding the twig; who, also, found it to turn at the stream. This was particularly gratifying, as but few appear ever to possess this faculty. But the latter soon found that it would turn at *any place;* and doubts immediately arose of the infallibility of the indications by the former. The experimenter accordingly very obligingly consented to be blindfolded, when the trial was repeated. The stick no longer pointed downwards to the stream, but at irregular and unconnected points. The experiment in short proved an entire failure. It may be proper to add, that a deep narrow ditch was afterwards cut from the well, beyond the point indicated, and below the depth stated, and in fact nearly the depth of the well, but no stream of water was found.

Did the experimenter mean to deceive? By no means—the farthest from it possible. But from the peculiar manner of holding the twig, its weight throws it down very easily, acting with considerable force at the points of turning. Hence, at certain places a slight motion, or movement of the fingers, would cause it to descend. Those who know with what force the imagination acts upon a tense and excited nerve, even with the person himself knowing nothing about it, and sincerely believing in another cause, will perhaps consider this as a sufficient explanation. If so, it will be easily understood why the twig should turn at points where it would be *expected* to do so.

As this method of finding water cannot be accounted for by any known principles of electricity, of attraction, or even of *animal magnetism,* it requires exceedingly strong proof to establish its correctness. I have known many wells to be dug, but never but one or two where a sufficiency of water was not obtained at a greater or less depth; in fact, there appears to be numerous underground streams; or the earth appears, in other words, to be nearly saturated with water at a little distance below: hence, water is nearly always found; and, hence, also, the usual success inspires confidence in the method, while failures are more apt to be forgotten. A theory, sincerely believed in, is much more apt to cause us to remember all in its support, and forget what there may be against it, than one which is more doubted. Very respectfully,

J. J. THOMAS.

Macedon, 3d mo. 1840.

Weight of Berkshire Hogs.

Messrs. Gaylord & Tucker—As to the character of the Berkshires which I have, I will state the weight and usage of a pair of barrows, which I killed last winter. The summer after they were pigged, (in the spring,) they were kept in the pasture field, without any other feed than grass; in the winter they had the common usage with other shoats, and were turned out again early in April on sheep pasture, and ran in the fields with the sheep the whole season until October, when they were shut up and fed on corn and rye, boiled beets, potatoes, &c. They were butchered in February, and weighed 1,020 pounds dressed. They were not fed more highly than hogs usually are, nor in any way forced. The pork was pronounced by all who tasted it, as decidedly superior to the meat of the common breed of hogs. J. R. CALDWELL.

New-Windsor, April 16, 1840.

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The subscriber would submit the following statement relative to the weight of a Berkshire sow, fatted by him last fall. The 1st day of May, was turned out to pasture, and had no feed but grass until the 1st day of September, when she pigged. The pigs run with her until the first of October, when they were taken away. She

was then put up and fed 66 days; when killed weighed 396 pounds. I make the statement in order to correct some erroneous opinions relative to the size of the Berkshire hogs. I am fully satisfied they are (when thorough bred) the largest and best breed to be found in this country. Yours respectfully,

J. C. DEWEY.

Leeds, Greene Co., March 21, 1840.

A New Plan for a Bee-Hive.

EDITORS OF CULTIVATOR—I have in my mind a new plan for a bee-hive; a description of which I intend giving you, that those better acquainted with these industrious insects, than I am, may say whether it is a good one or not; and also, that if it is an improvement, that it may be brought into use.

It may be denominated the "Book-Case Hive," and by reference to books standing upon a shelf, I can best illustrate my idea. Let the books be made of tin, or other metal, or wood, but tin is preferable, 15 inches high, 10 inches wide, and 2 inches thick. The back of glass, and one of the sides made to slide in a groove, so that it would in fact be a tin box, with a sliding lid. Each of these "books" or boxes, must have holes through the sides exactly opposite each other, with small slides to shut. I would make the holes at the lower corner, next the back. When in the case they would form a communication from one to another, and also out to the open air.

To put a swarm in, take out one of the centre boxes, and the slides from the two adjoining ones, and put the bees in the space; then replace the other box, having drawn the slide also of that, and push gently in until the bees crawl into the other boxes; then shove in the slides and shut the door of the case. By opening the case door at any time, the operations of the bees can be seen through the glass backs of the "books," and whenever it is seen that a book is full, and you wish to peruse its contents, drive the bees out of that book, if any remain in it, into the adjoining ones, by tapping on it, or insert the nose of a bellows in a hole made for the purpose in the back of each book at the top end, and close the little slides over the holes in each side of the adjoining books, and withdraw your book, and put an empty one in its place, and open the side holes again and admit the bees to fill again the empty book.

You will perceive that it is not necessary to empty the full book, because it is now a neat convenient tin box, with a sliding lid to keep out all insects and dust, until you have used up the contents. To open it, slip a knife under the lid and cut the adhering comb loose.

You will see that the book case may be extended to any length, and may be placed in any situation, and may contain two or more swarms, by stopping the passage from one book to another. It might be made a neat and handsome piece of parlor furniture, and the bees conducted to the outside of the house through a tube, wherever they would not be an inconvenience on the out side.

Whenever you wish to form a new colony, all you have to do is to withdraw one or more of the full books of bees, and place them in a new case.

If this is a new and good improvement, I hope those who like it will use it immediately, because after proving its value, I may incline to patent it. I hope to hear free remarks upon the subject.

"With affectionate regard,"

SOLON ROBINSON.

P. S. Another convenience of my "book case hive," would be the facility of moving, as by closing the passages through the books, they could all be withdrawn and carried about with all the contents undisturbed, and the empty case, however large, could then be removed. I now have my bees in the chamber of my house in boxes, upon the plan of the "Kentucky bee house." It would be very troublesome to move them. In summer time, almost impossible.

The "book case hive" might be made to hold a large colony, or no larger than a single hive, which might as usual stand out door, and could be prevented from swarming by a timely withdrawal of the book containing the new queen. Single hives standing out, should always be raised about an inch from the bench, by driving in four nails to serve as feet for the case to rest upon, and the bees admitted inside through a long narrow passage.

I am satisfied that bees would fill a new book placed in the centre of their operations, much sooner than they would the same space in the "double box" or "drawer hive." In withdrawing a book, no disturbance would be created in the hive, no broken comb, no honey spilled, no shifting from one vessel to another, no loss, or dirt or dead bees.

If the plan works as well as I anticipate, I intend to provide ways and means, to have a case exhibited at the next exhibition of the American Institute, unless some friend to agricultural improvement, who resides much more convenient than I do, will undertake to do it in a manner creditable to American enterprise.

SOLON ROBINSON.

Lake C. H. Ia. April 2, 1840.

To Break Dogs from Sucking Eggs.

Break an egg, and after pouring out a part of the white, put in 7 grains of tartar emetic; lay the egg in the yard where he will find it; he will be sick for a day, but not injured. Should 1 dose fail, repeat it. I never knew a hound to take more than 3 doses—very often one will do. C. S. J.

Rural Architecture.

MESSRS. GAYLORD & TUCKER—Not long since, the columns of your valuable paper were devoted to an inquiry into the most suitable forms and plans for farm houses, the result of which will doubtless be beneficial to the country at large. There is another subject, intimately connected with this, which, I think, is equally deserving of attention; and, as I know of no other medium, through which the information referred to, can be so extensively disseminated, as through the columns of the Cultivator, I propose offering a few remarks thereon.

Next to the wants of the great mass of agriculturists, who require a plain, economical and convenient house, come those in more affluent circumstances, who are able to expend a little in erecting more substantial houses, in which taste and convenience may alike be studied. But this branch of building, called Rural Architecture, you are aware, has attracted little or no attention among us. It is not because people are unable or unwilling to erect dwellings of this description, that we do not see them, but because they have never studied this branch of art.

In England and France—in fact, throughout the continent, rural architecture is studied by all classes in the country; hence, the beautiful villas and cottages, that strike the eye of the traveler in those countries. The expense of erecting a cottage, or villa, and laying out the ground adjacent in a tasty manner, adapted to its situation, is not greater than to build up a rude mass of brick and mortar, without regard to either convenience or taste. It is the same where wood is the material; for this can be the more easily wrought into any desired form.

There is no part of the world, where more eligible, I may say delightful, situations may be found than within our own state, and particularly in the vicinity of New-York, for a display of taste in rural residences, whether for a cottage or an extensive mansion; yet how few have improved them.

On either bank of the East River, to its union with the waters of the Sound, the locations are unsurpassed for beauty. Every variety of scenery is here presented. First, a valley, then a sloping hill. Next a bold and rocky promontory, and again a level plain. All are in sight of the river, which, from its windings, frequently presents all this variety of scenery in the same landscape.

It is true, that there are many residences in these romantic places, and that they appear agreeable to the eye, as we pass along in the steamers: it is not the houses that attract attention, but their situations. Art has done nothing for them, but nature all.

Then we have the noble Hudson, whose banks present another variety of landscape. Here, wild, rugged and mountainous; there, cultivated and subdued. But no rural villa, or stately mansion, or simple cottage, is here seen, that exhibit taste or refinement. The old fashioned square farm house is the predominant style, though, in a few instances, are some that make pretensions to beauty. These are mostly Grecian, and present the appearance of temples. I do not deny that the Grecian order of architecture is the most beautiful and chaste, that we practice; but that it is adapted to every style of rural residences as here practiced, I utterly deny For churches, public buildings, stately mansions, it will do very well, but not for the latter, unless the situation is adapted to it. The Grecian styles may be varied and adapted to mansions, or to a more simple dwelling; but where they are employed, they present the same form, with ranges of columns and large porticos. Take, for example, one of the mansions alluded to. You see a building resembling a Grecian temple, with the addition of green blinds. Near by is a huge barn, and perhaps the whole is surrounded with a rail fence. A few poplar trees may have been planted, and a cabbage garden flourishing in front, with an occasional sun-flower or hollyhock. Such is the want of taste and proper arrangement among our wealthy farmers, or among gentlemen who have retired to the country.

The question then arises, how are these evils to be corrected, and the public taste so improved that buildings may be put up, which are adapted to every situation, whether a simple cottage, or an extensive mansion, that a gentleman when he has selected a spot for his residence, may know how to improve and regulate his ground; to adopt a plan for a house, adapted to its situation; how to place his barns and out-buildings, so that they may not injure the appearance of his house; how to arrange them in the most convenient and economical way—in fact, how to arrange his whole establishment with regard to convenience, economy, and effect. As this is a science with which we are little acquainted in this country, we want examples from abroad, where it has long been practiced, and is well understood. I do not, therefore, wish to see any particular style of rural architecture adopted, or even to suggest what is most striking to my taste. I want to disseminate all the information that can be obtained in books, among those who can be benefited by them. I want to see the beautiful situations that abound in our state, properly appreciated and improved. The banks of the unrivaled lakes in the western parts of the state, and of our rivers, present the most delightful situations; yet, but few are improved as they ought to be.

Without entering farther into this subject, the importance of which must be obvious to all, I beg leave to refer the readers of the Cultivator to a series of works on Rural Architecture and Farm Buildings, which, if properly read and examined, will effect all that is desired. They are the most recent works published on the subject, and enjoy the highest reputation in England. They are all by the same author, P. F. Robinson, Esq. Vice-President of the Institute of British Architects. Their titles will fully make known their contents. They are the following:

1. *Robinson's Rural Architecture*, being a series of designs for ornamental Cottages, Residences, Parsonages, Alms-Houses, Farm Houses, Dairies, &c. with Ground Plans, Elevations, and Admeasurements, with estimates. In 96 plates, 4to.

2. *Robinson's Designs for Ornamental Villas*, adapted to the wants of individuals of moderate income, intended to elucidate the possibility of producing Architectural Effects, combined with comfortable arrangements, without increased expenditures. Including Residences in Swiss, Grecian, Modern Italian, Tuscan, Old English, Castellated, Elizabethan, Ancient Manor House and other styles; also Stables, Garden House, Watermill, &c.; with Ground Plans and Elevations. In a series of 96 plates, 4to.

3. *Robinson's Designs for Gate Cottages, Lodges and Park Entrances*, in various styles, from the humblest to the castellated. In 48 plates, 4to.

4. *Robinson's Village Architecture*, being a series of designs for the Parsonage, the Inn, School House, Market House, Town Hall, Church, &c. illustrative of the observations contained in the Essay on the Picturesque, by Sir Uvedale Price. In 41 plates, 4to.

5. *Robinson's Designs for Farm Buildings*, with a view to prove that the simplest forms may be rendered pleasing and ornamental, by a proper disposition of the rudest materials. Including the Laborer's Cottage, Farm House, Barn, Granary, Cow House, Mill, Dairy, Shed, Reservoir, &c. in the Old English, Italian, and Swiss styles. In 56 plates, 4to.

6. *Robinson's New Series of Designs for Ornamental Cottages and Villas*, with estimates of the probable cost of erecting them, forming a sequel to the other works on Rural Architecture. With 56 plates, 4to.

The last mentioned work contains designs of cottages and villas, which have actually been erected by Mr. Robinson, since the publication of his former works. It also contains estimates of each, which vary from £100 to £1,600, or $500 to $8,000. Many of these were old houses altered—a system which might be extensively adopted with us; as it is not always necessary to remove a good house, because it is not properly built.

In the reviews of these several works of Mr. Robinson, by the English papers, the highest praise is bestowed on them, and he has the credit of having done more than any other man, in improving the taste of the English people. Feeling great interest in the subject myself, I have procured all the works named, and hope by their means to improve the style of building among us. They are all published by *Henry G. Bohn, London*, from whom I obtained my copies, though, I presume, they may be obtained of the booksellers in New-York. They are got up in a superior style, both as to engraving and printing, and are much more elegant ornaments for the drawing room and center table, than the useless annuals that are usually found there. J. R. B.

Preservation of Cabbages.

MESSRS. GAYLORD & TUCKER—The following methods of preserving cabbages for winter use, which are the result of experience, may be of use to some of your numerous readers.

The cabbages should be gathered before injury is done them by the severe fall frosts; the heavy outside leaves should remain on the stalk. Fix a string or cord round the stump, near the roots, suspend from the sleepers with the heads downward in a cool cellar, and they are ready and fit for use at all times. Cabbages kept in this manner retain all their peculiar flavor and sweetness; the whole virtue of the stump and leaves is concentrated in the part which is used, are handy of access, occupy but little room which would be occupied by other purposes, and seldom, if ever rot; the outside leaves wilt and contract, and in time become quite dry, which forms a sort of coating that serves to exclude the air from the inside of the head.

Another method praticed by some, and highly recommended, is to cut the head from the stump, pack close in a cask, taking care to fill up all the vacancies with dry chaff, thereby excluding the air, and keep in a dry cellar

Making Vinegar.

Vinegar (an indispensible article in house keeping) may be easily made by observing the following simple rule, viz: procure a clean oaken cask, of the size of a common barrel, or wine cask, place it in a warm room, if in the summer time, the garret, near a roof which is exposed to the warm rays of the sun; put in say one or two gallons of clear fermented cider, leave the bung out so that the air may have free circulation; in the course of two or three weeks it will become sharp vinegar fit for use. Cider may then be added from time to time in small quantities, and increased at pleasure, taking care to never add more cider at any one time than there is vinegar already in the cask; in recruiting care should be taken that clear fermented cider be used; excluding all such trash as cider emptyings from old casks, tea grounds, &c. &c. C. M.

Marcellus, February 24, 1840.

Preserve your Papers.

MESSRS. EDITORS—I wish to make a few remarks on the propriety of subscribers to the Cultivator, and other valuable papers that are adapted for binding—preserving them for future reference or reading. It requires but little attention at the time, and, to every farmer, may be of considerable importance. There are, in such papers, a multitude of valuable facts stated, recipes given, &c. &c. which no one can pretend to remember, and which, when most wanted, cannot be made available, for the reason that the papers have not been preserved. I have been a subscriber to both the Genesee Farmer and the Cultivator from the commencement of each, and I have them, now, bound and complete. Circumstances have placed within my reach, a number of the most valuable foreign agricultural works; yet, there is none that can be consulted with so much profit as these two series.

My method of proceeding with these, and other papers I wish to preserve, is this. I take my papers as often as is convenient, or when time can best be spared, dampen them, hold them to the fire till nearly dry, and then, with a smoothing iron, moderately hot, dry them thoroughly. They will now be as smooth and free from breaks as when they came from the press. They are now carefully folded, and laid away, or, if desirable to have them in use, they are placed in a cover of brown or other paper, and thus kept until the volume is complete, when it is sent to the binder, and takes its place in the library ready for reference at all times.

I will state one fact, which will show the utility of pursuing this course. A gentleman assured me, a few days since, that a reference to preserved volumes of the Genesee Farmer, saved him an improved Durham calf, which is now two years old, which has earned him 150 dollars the past season, and for which several hundred dollars have been offered and refused.

X. Y.

Vanfossen's Patent Grain Cutter.

MESSRS. GAYLORD & TUCKER—Having been for some years engaged in agricultural pursuits, and feeling deeply the necessity of adopting some plan to avoid the great losses to which farmers, especially of this western country, are subject, by the difficulty of procuring help, and consequent injury of their crops, at that most critical and important period, harvest time, I have been induced to make numerous experiments within the last two years, the result of which is, the invention of a machine, (the PATENT GRAIN CUTTER,) the use of which obviates the evil alluded to.

This machine is calculated for both hand and horse power. It cuts the grain, lays it in a swath, and the horse machine also rakes ready for binding. With the hand machine, a man will accomplish with ease, in a given time, as much as two or three can do in the ordinary way.

The amount of work accomplished with the horse machine, will be proportionably greater as the propelling force. Almost any boy can manage this machine, that is capable of managing a horse.

The expense of constructing the Grain Cutter, is comparatively trifling, as it is very plain and simple, and its cost will be no obstacle to its general use wherever there are raised large crops of grain. This machine can be examined by any one calling at the residence of the subscriber, who is now preparing to take out a patent, and hopes soon to be in readiness to sell rights or machines.

I intend to deposite machines or drawings soon at the office of the Cultivator, Albany; at Rochester, and at various other places, for examination.

T. J. VANFOSSEN.

Sylvania, Lucas co. O. March 30, 1840.

To Preserve Cabbages from Lice.

MESSRS. GAYLORD & TUCKER—Having always been of the opinion that the all-wise Creator made nothing in vain, yet I could not possibly conceive, for what purpose he created that most uncomely reptile the toad, until some years since, having a fine lot of cabbages that I was endeavoring to bring to the greatest perfection, which were completely covered with the cabbage lice, so much so, that I gave them up as so much labor lost, until one morning I discovered a toad mounted on a large leaf; I watched his movements, until he had cleared them all off, and mounted another leaf, which he quickly cleared. I then took my basket and went a toading; found about a peck, and turned them in; and to my astonishment, in two days the whole field of cabbages was perfectly free from lice. For a number of years I have never found this plan to fail.

Should this hint be of any use to the sour-krout brotherhood, or the good people of Communipaw, it is at their service.

As one of the subscribers to your invaluable paper, I am, gentlemen, your ob't serv't. N. STARR.

Middletown, Ct. April 18, 1840.

Imported Hogs in Upper Canada.

A breed of hogs imported from England, bred by the late Edward Ombler, Esq. of Cameston, county of York. Their principal quality consists in arriving at a great weight at an early age. Several of the breed have been slaughtered in Guelph, at the age of one year, that have exceeded the weight of four hundred pounds. They are a pure white, and possess remarkably fine bone. JOHN HARLAND.

Guelph, U. C. March 14, 1840.

Peach Trees.

MESSRS. EDITORS—I planted an orchard of peach trees in the spring of 1836, which have been very much injured by the grub-worm; I have cut and cleared them out several times, and put fresh and leached ashes around the trees frequently without having the desired effect. In the spring of 1839, I put charcoal dust and dust from a coal hearth around several trees, which partially prevented any further injury from the worms. 1840, a few days ago, I commenced applying spirits of turpentine to the trees, according to a direction in the Genesee Farmer last summer; I am also applying tan bark (just taken from the vats,) to my trees, as a neighbor of mine had a lot of trees, very much injured by the worms, rescued, and the ravages of the worms entirely prevented, by putting tan around his trees. I would be very thankful for any information, in relation to the effect produced by putting ashes or tan around fruit trees. H. HAMMOND.

Lewisberry, Pa. April, 1840.

MESSRS. EDITORS—I have been a constant reader of the Cultivator for two years, and though living in the city and following a mechanical business, I am always glad to see the postman come with my paper; and I assure you, 'tis with no small satisfaction I hear of the improvements that are making in agriculture. I should think that man a foolish one indeed, who after having once seen your paper, would be without it. Having friends living in the country, who I know do not take your paper, and who perhaps never will, unless some pains are taken to show them the value of it, I send a year's subscription for them, and you will please send me two papers, instead of one, for the present year. A MECHANIC.

Cure for the Black Tongue.

A handful of fine salt rubbed upon the tongue of a horse that has the black tongue, will cure it, in at the most two applications. It is infallible, and simple and cheap enough. In 1833, I tried it upon four of my own horses, and the stage proprietors cured over 30 horses with it, without one failure. C.

Marshall, Mich. March, 1840.

To Correspondents.

We have been favored with the copy of the Address delivered before the Horticultural Association of the Valley of the Hudson, at its Meeting at Niblo's Garden, New-York, last autumn, by WM. EMERSON, Esq. which we shall publish next month.

The plan of Mr. Frost's Piggery—the plan of a House from A. H. N., and the drawing of Mr. Bodden's Harrow, together with a portrait of the Short Horn bull, President, owned by Messrs. Gaylord & Fuller of Skaneateles, will appear in our next number. Also, several communications, among which is one from S. GUTHRIE, Esq. detailing his experience in feeding the sugar beet, &c.

"A Subscriber" wishes to know if "a graduate of one of our New-England colleges, is likely to make a good farmer?" Though he may not have obtained at college the information most necessary for a farmer, there can be little doubt, but that, with proper industry and observation, he may yet become a good one. The day has gone by, when ignorance was considered requisite to constitute a good farmer.

R. Foster will find his inquiry answered in the excellent communication of James Byrd, in the last number of the Cultivator

ACKNOWLEDGMENTS.

Two copies, elegantly bound and lettered, of *The Young Gardener's Assistant*, by T. BRIDGEMAN, Gardener, Seedsman, and Florist, New-York. Eighth edition, 1840. From the Author, who will accept our thanks for his excellent work, which, we are pleased to learn, meets with so ready a sale, as to require a new edition annually.

The Journal of the English Agricultural Society. Part III. from G. C. Thorburn, Seedsman, New-York.

We have also received, through Dr. Beekman, the last two numbers of the Edinburgh *Quarterly Journal of Agriculture*, and the London *Farmer's Magazine*, for February, March, and April. Our copy of the latter work for February and March, failed to arrive.

The *Edinburgh Evening Courant*, with its supplement, containing the Highland Society's List of Premiums for 1840, from W. L. Mackenzie, Rochester.

Third Report of the Agriculture of Massachusetts. By HENRY COLMAN, Commissioner for the Agricultural Survey of the State, from the Author. This volume of 250 pages, octavo, is devoted to the subjects of Wheat and Silk.

Speeches of Mr. Webster and Mr. Silliman, at the Agricultural Meeting in Boston, last winter; with notes by Mr. Colman. From the Hon. DANIEL WEBSTER.

A superior *Berkshire Pig*, from Z. Standish, No. 226 Washington-street, Albany, who desires us to say that he can furnish his friends, from several litters now on hand, and others soon to come in, with pigs equally beautiful and pure blooded.

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Back Volumes of the Cultivator.

All the published volumes of the Cultivator can be furnished to new subscribers. The price is, for vols. 1, 2, 3 and 4, 50 cents each—vols. 5 and 6, $1.00 each. They are handsomely done up in printed covers, and can be sent by mail at the expense of newspaper postage.

THE MARKETS.

New York, May 23—There is a fair demand for Ashes at $4.50a$4.88. The sales of Cotton are 6,500 bales at 6a11 cts., prices firm.

The closing sales of Genesee Flour have been at $4.88; Ohio, via Canal, $4.62a75; Georgetown, $5, New Orleans, $4.62. Rye Flour and Corn Meal dull, at former prices. Sales Northern Rye at 54a55 cts. Southern Corn has sold at 53a54 cts, wgt. Northern Oats are plenty at 36a37 cts; Jersey 32 cts.

Beef and Pork are in good demand. Lard is a little dearer. The sales of Rice are 300 tcs. at $3a3.31.

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